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F. SAXON

SNOWPLOW

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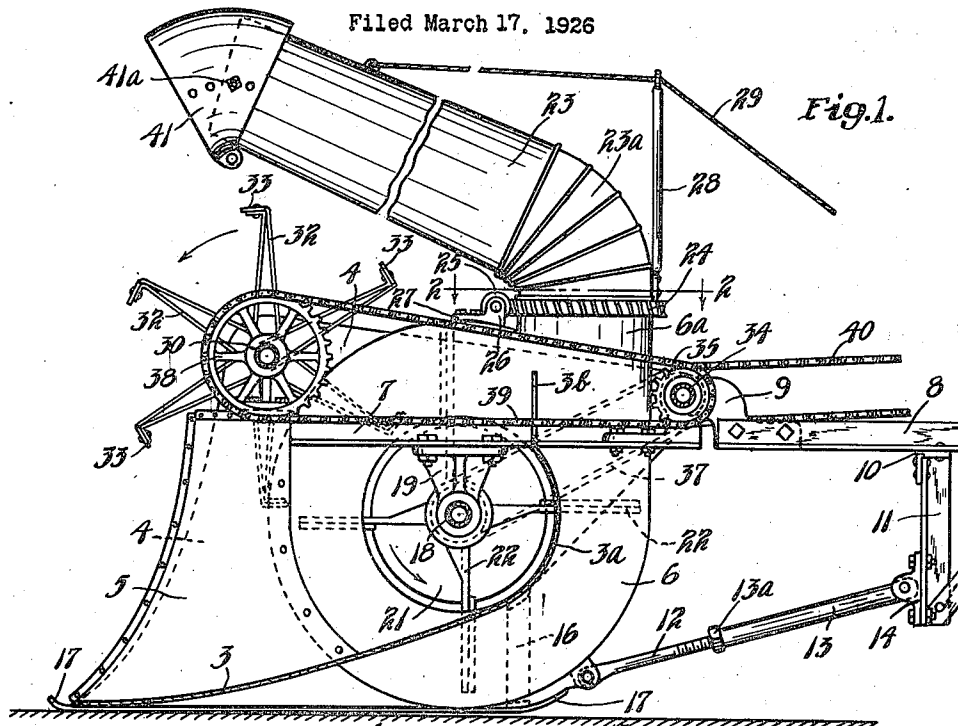


Fig. 1.

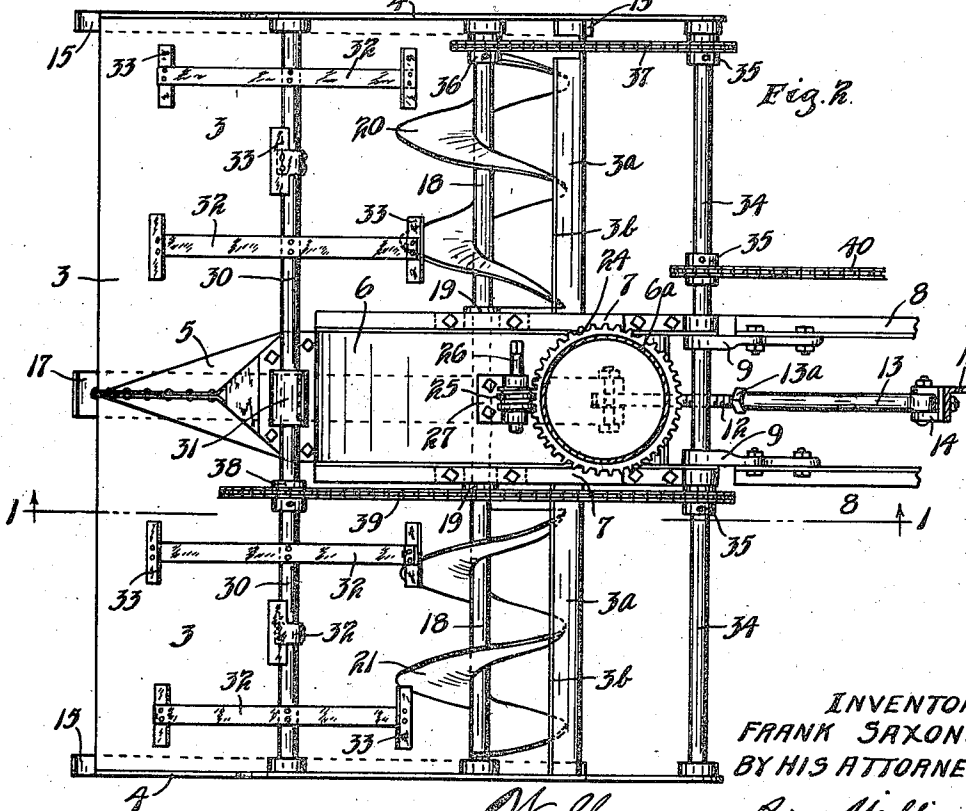


Fig. 2.

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SNOWPLOW.

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This invention relates to snow plows, and particularly to the type of snow plow adapted to be mounted on a vehicle and used for plowing roads, city streets, railroad right-of-ways, etc.

It is an object of this invention to provide an improved snow plow having therein a snow scoop, a rotary fan for discharging the snow, and means for conveying the snow from the scoop to the fan.

Another object of the invention is to provide a snow plow having a fan casing, a fan therein, and a spout adapted to be both vertically and horizontally adjusted to direct the discharge of snow from the fan casing in various directions.

It is still another object of the invention to provide a snow plow having a snow scoop, a fan casing, a fan within the casing, and a helical conveyor adapted to carry the snow from the scoop to the fan casing.

It is yet another object to provide in a snow plow, having a scoop and conveyor, a snow disintegrating means adapted to break up the snow in advance of the conveyor, and direct the same into the conveyor.

A further object is to provide a snow scoop having a channel therein adjacent its rear end, within which a conveyor is adapted to operate, and a snow deflecting plate above the conveyor.

These and other objects of the invention will more fully appear from the following description made in connection with the accompanying drawings, in which like reference characters refer to the same parts throughout the several views, and in which,

Fig. 1 is a vertical section taken on the line 1—1 of Fig. 2; and

Fig. 2 is a sectional plan view of the device taken on the line 2—2 of Fig. 1.

Referring to the drawings, a snow scoop 3 is provided, extending upwardly and rearwardly from the forward portion of the machine. The lower edges of the scoop 3 are secured to sideboards 4, the scoop extending transversely between the two sideboards. A prow 5 is fixed in the central forward portion of the scoop, dividing the scoop into two sections forming mold boards. Behind the prow 5, a cylindrical fan casing 6 is positioned, secured to the prow and to the central portion of the scoop. Angle bars 7 are secured at either side of the fan casing, and extend in substantially a horizontal plane to the rear of

the machine. Angle bars 8 are pivotally secured to the bars 7, respectively, by means of hinges 9, while angle bar 10 connects the two bars 8 and has depending therefrom the vertical bar 11. Bars 8 and 11 are adapted to be secured to a vehicle preferably of the common truck or tractor type. A push bar 12 pivoted to the lower portion of the fan casing 6 has a threaded end portion fitted within the interior threads of a hollow tube 13, pivoted in turn to a bracket 14 secured to bar 11. Rod 12 is adapted to be adjustably secured in tube 13, and held in place by means of a lock nut 13^a.

Secured to the bottom of the sideboards 4 and to the side edges of the front portion of the scoop 3, are runners 15 having the usual upturned lips at their forward ends and extending rearwardly therefrom, to be connected to the scoop 3 adjacent their rear ends by means of the braces 16. A central runner 17 is secured below prow 5 and fan casing 6. The conveyor and fan shaft 18 is journaled in the sideboards 4 and runs transversely through the center of the cylindrical fan casing 6, being additionally journaled adjacent the fan casing in brackets 19 depending from the bars 7. Helical scoop conveyors 20 and 21 are secured to the shaft 18, one at either side of the fan casing. Conveyor 20 is of the left hand screw type, while conveyor 21 is of the right hand screw type. The fan casing 6 has central openings at either side adjacent the inner ends of the helical conveyors 20 and 21 respectively. A fan 22 is secured within the fan casing to the shaft 18. Scoop 3 has a curved channel portion 3^a adapted to fit around the rear side of the two conveyors, and to form a channel therefor within which the conveyors may operate. A projecting snow deflecting plate 3^b is formed at the upper rear end of the scoop 3 and extends outwardly over the conveyors.

The fan casing 6 is formed with a tangential discharge outlet 6^a having connected thereto a tubular conduit or spout 23 having an adjustable elbow 23^a therein. The lower section of said elbow fits within discharge outlet 6^a and is rotatable therein. Secured to the lowermost section of the elbow 23^a is a circular worm gear rack 24 bearing against the top of discharge outlet 6^a and co-operating with the worm 25 secured on stub shaft 26 journaled within bracket 27, which in turn is secured to the top of the

fan casing 6. Shaft 26 has a squared head with which any common type of crank is adapted to co-operate for turning the worm 25 and thereby rotating the spout 23. A support for the spout 23 shown as a rod 28 is secured to the elbow 23^a and has an eye therein at its upper end through which the cable 29 extends. Cable 29 is secured at one end to a lug adjacent the outer end of the spout 23 and extends rearwardly to be operated by the operator of the vehicle to which the plow may be secured for vertical adjustment of the spout about the elbow 23^a. Spout 23 has any common type of adjustable hood as 41 secured at its outer end. The hood 41 is shown as pivoted to the spout and is capable of angular adjustment in respect to the discharge end of the spout by means of a bolt 41^a extending through the spout and being adapted to extend through any one of a series of spaced apertures in the hood.

A snow disintegrator is mounted at the upper front portion of the plow and comprises a transverse shaft 30 journaled in the sideboards 4 at their upper forward portions and in the bracket 31 secured to the top of the prow 5, the radial arms 32 secured to shaft 30 at spaced intervals thereon and the snow engaging blades 33 secured at the ends of arm 32. Shaft 30 is mounted forward of and above shaft 18.

A main drive shaft 34 is journaled in the rear ends of the sideboards 4 and also in the hinges 9 connecting the bars 7 with the bars 8. The drive shaft 34 has sprocket wheels 35 secured thereto, one adjacent an end thereof and one adjacent each of the hinges 9 at the outer sides thereof. A sprocket wheel 36 is secured adjacent one end of the conveyor and fan shaft 18, and is adapted to be driven from sprocket 35 adjacent the end of shaft 34 by means of an endless chain 37. A sprocket wheel 38 is secured to the disintegrator shaft 30 adjacent one side of the fan casing, and is adapted to be driven from one of the sprockets 35 adjacent a hinge 9 by means of endless chain 39. Drive shaft 34 is adapted to be driven from any rotatable part of the vehicle by means of a drive chain 40 meshing with the remaining sprocket wheel 35 adjacent one of the hinges 9.

Operation.

The snow plow having been secured to a vehicle, preferably at the front end thereof (not shown), and the drive chain 40 having been connected to a rotatable part of the vehicle, the device is ready for operation. Push rod 12 is first adjusted by means of lock nut 15 to set the plow at the correct angle of adjustment with the ground. As the plow is pushed forward by the vehicle and the drive shaft 34 is rotated, the shafts 18 and 30 will be rotated, thereby operating

the helical conveyors 20 and 21, the fan 22 and the disintegrator arms and blades 33 and 32. As snow is encountered by the forward end of the scoop, it will be elevated thereupon until forced into the helical conveyors 20 and 21. The rotating conveyors will carry the snow to the inside of the fan casing 6 where the same will be projected outwardly through the discharge outlet 6^a by means of fan 22. Spout 23 may be vertically adjusted about shoulders 23^a by means of raising or lowering the cable 29 and the spout may be horizontally adjusted by means of a crank adapted to be connected to shaft 26, which will rotate worm 25 operating in turn on the worm gear rack 24 to rotate the spout. The snow may be forced by fan 22 outwardly from the spout 23 in any desired direction, by placing the spout in the properly adjusted position and by properly adjusting hood 41. As the outlet mouth of the spout may be raised to a considerable height and as fan 22 is adapted to be rotated at high velocity, it will be seen that snow may be discharged from said spout at a considerable distance from the plow.

If heavy drifts of snow are encountered, or if it is found that the snow will pile up in front of the helical conveyors 20 and 21, the radial arms 32 and blades 33 of the disintegrator will break the snow up and will direct the same into the helical conveyors. If it is found that snow will pile up over the top of the conveyors 20 and 21, the snow deflecting plate 3^b will direct the same downwardly against the conveyors and prevent the snow from being carried over the rear of the plow.

The runners 16 and 17 will permit the plow to be readily slid over ice and snow if the angle of deflection of the plow with the ground is such due to the adjustment of the push bar 12 that the runners will touch the ground. The whole plow is adapted to be supported from the vehicle by means of the bars 8 and the hinge 9 when the push bar 12 is properly adjusted. The hinged connection between bars 7 and 8 permit the plow to be raised or lowered as the push bar is adjusted to be raised entirely off the ground or to bear against the ground as may be desirable at various times.

The device is simple in operation, comprises but comparatively few parts, and is very efficient for the purposes set forth. It is found that by use of the fan in connection with the spout 23 that snow may be carried a considerable distance over the side of the road plowed. With the usual type of plow now employed, snow is merely pushed to one side of the road and the same will form ledges at the side of the road, causing huge drifts across the road when further snow falls. By use of the present invention, the snow discharged by the spout

23 at some distance from the side of the road will form ledges of snow at these points which will act as snow fences to prevent the drifting of snow across the road when further snow falls. Spout 23 can be quickly raised or lowered or turned to direct snow in different directions. This feature is highly advantageous in that the spout may be turned to discharge snow at one side of the road rather than upon a cross road when a cross road is approached, in operation of the device. The best effect may be had in using the plow in directing the discharge of snow in the direction towards which the wind is blowing.

The plow will be found highly useful in clearing city streets where the disposal of the snow after being plowed from the center of the streets and the sidewalks is always a big problem. The device can be used on such streets and the snow directed by means of the adjustable spout and hood into a dump wagon or truck which may follow along beside the vehicle upon which the plow is mounted, when the device is in operation, and the snow thus may be plowed and delivered for final disposal during the one plowing operation.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which, generally stated, consists in a device such as is shown and described and set forth in the appended claims.

What is claimed is:

1. A snow plow adapted to be mounted on a vehicle, having in combination a snow scoop, a rotary snow disintegrating means, ejecting means and conveying means rotating about an axis below and to the rear of the axis about which said disintegrating

means rotates, said conveying means being adapted to move the snow from said scoop to said ejecting means, said disintegrating means being adapted to act in advance of said conveying means to force the snow downwardly and rearwardly to said conveying means.

2. A snow plow adapted to be mounted on a vehicle having in combination a snow scoop, a rotary snow disintegrator above said scoop, a rotary snow conveyor adapted to rotate about an axis disposed below and behind the axis about which said disintegrator rotates, both said disintegrator and said conveyor being adapted to move rearwardly and downwardly at their lower forward portions, said disintegrator being adapted to break up the snow and push the same rearwardly into said conveyor, said conveyor being adapted to receive from said scoop and said disintegrator and to initially push the same rearwardly, and rotary ejecting means to which said conveyor leads.

3. A snow plow adapted to be mounted on a vehicle having in combination, a snow scoop, a pair of sideboards to which said scoop is connected, a main drive shaft journaled in said sideboards, a rotatable shaft adjacent the rear of said scoop journaled in said sideboards, a helical conveyor secured on a portion of said last mentioned shaft, a fan casing to which said conveyor is adapted to deliver, a fan on said second mentioned shaft, rotatable within said casing, and means for driving said second mentioned shaft from said main drive shaft.

4. The structure defined in claim 3 and a rotatable snow disintegrator journaled in said side boards adjacent and ahead of said conveyor and means for driving said disintegrator from said main drive shaft.

In testimony whereof I affix my signature.

FRANK SAXON.