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ROTARY SNOW PLOW

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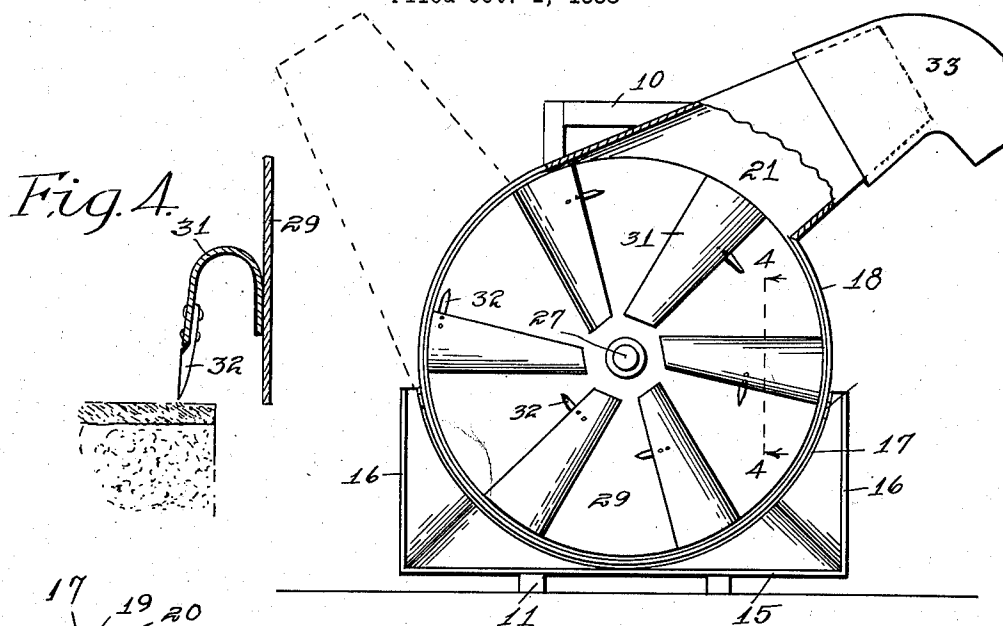


Fig. 1.

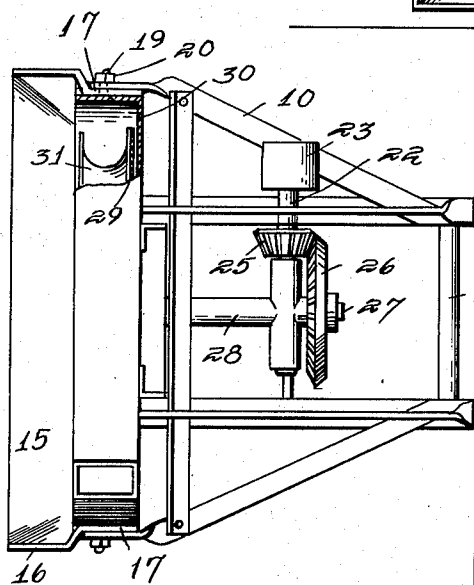
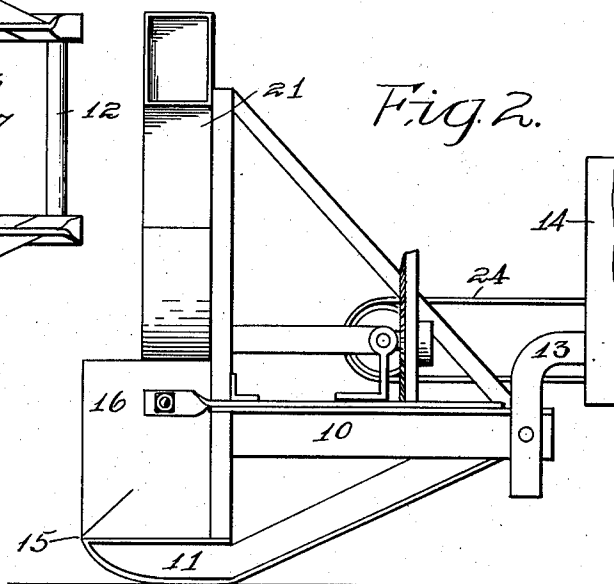


Fig. 2.



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ROTARY SNOW PLOW

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5 Claims. (Cl. 37-43)

The object of my invention is to provide a snow plow of simple, durable and inexpensive construction especially designed to be detachably connected with and operated by a tractor or other motor vehicle.

More specifically, it is my object to provide a snow plow of this class so constructed and arranged that it may be readily and quickly adjusted to throw snow either to the right or left of the vehicle as wind and weather conditions may demand.

A further object is to provide a snow plow of this character in which, if desired, the snow may be delivered into a truck or the like being advanced alongside the snow plow.

A further object is to provide means whereby in the event that the snow should be covered with ice or tightly packed sand, same may be readily and easily broken up and removed without injury to the rotary snow throwing blades.

In the accompanying drawing Figure 1 shows a front elevation of a snow plow embodying my invention, a part of the discharge chute being shown in section and an adjusted position of the discharge chute is shown by dotted lines.

Figure 2 shows a side elevation of same;

Figure 3 shows a top or plan view of same with parts broken away to show the structure of the snow carrying blades; and

Figure 4 shows an enlarged detail sectional view of a part of the rotary disc taken on the line 4-4 of Figure 1, and one of the snow conveying blades and the ice cutting tooth fixed to the blade. In this figure there is illustrated a layer of ice on top of a layer of snow in position to be engaged by the ice cutting tooth.

Referring to the accompanying drawing I have used the reference numeral 10 to indicate generally the frame of the snow plow, and this is formed of structural metal.

On the under surface of this frame I have fixed metal runners 11, and at the rear of the frame there is a cross bar 12 which may be attached to a motor vehicle by means of brackets 13, shown in Figure 2, and connected to the portion 14 of the motor vehicle.

At the forward portion of the snow plow there is a scoop, and this scoop has a horizontally arranged lower cutting edge 15 mounted directly upon the runners 11, and also at its ends are two upright snow-cutting members 16. Immediately in the rear of the cutting members 15 and 16 I have provided a substantially semi-circular rim 17, and the scoop is so shaped that material may

be forced rearwardly and into the space defined by said semi-circular rim.

Mounted within the semi-circular rim 17 is a circular rim 18, and these are adjustably fixed together by means of bolts 19 and nuts 20.

Connected with the rim 18 is a tangentially arranged chute 21. When the rim 18 is adjusted in one of its positions, as shown by solid lines in Figure 1, material is discharged through this chute outwardly and upwardly and to the right, as shown in Figure 1, but when the rim is adjusted to its other position, as shown by dotted lines in Figure 1, then material is discharged upwardly and to the left.

Mounted in the frame 10 is a shaft 22 having a pulley 23 thereon to be carried by a belt 24, with a pulley carried by the motor vehicle by which the snow plow is being advanced. On this shaft 22 is a beveled pinion 25 in mesh with a larger beveled pinion 26 on a shaft 27 rotatably mounted in a stationary bearing member 28. Fixed to the forward end of this shaft 27 is a disc 29, which disc is positioned immediately in front of a stationary plate 30 carried by the frame and forming a back for the circular rim 18.

Fixed to the forward face of the disc 21 is a series of snow removing blades 31. These blades, as shown in Figure 4, are trough-shaped, their rear edges being secured to the disc 29 and their forward edges being inclined in the direction or rotation of the disc, and forwardly. These blades are extended radially and from the outer circumference of the disc 29 to a point adjacent the center of the disc, as shown in Figure 1.

Attached to some or all of the blades are ice cutting teeth 32 projected in the general direction of the rotation of the blade, and forwardly, as shown in Figure 4. I preferably arrange these teeth at different distances from the center of the disc so that during their rotation each will engage the snow or ice to be cut at a different point and thereby break up all of the ice within the area of the scoop.

Detachably mounted upon the chute 21 is a hood 33 shaped to convey material passing through it in a downward and outward direction so that a truck may be advanced alongside of the snow plow and the snow loaded into the truck.

In practical operation, and assuming that the snow plow is attached to a motor vehicle and the shaft 22 is being rotated by power from the vehicle, then the motor vehicle is advanced through the snow, which will be cut loose by the edges 15 and 16 of the scoop. In the event that

there should be a layer of ice or tightly packed sand or the like on top of the snow, then during the rotation of the blades the teeth 32 will penetrate and break up this layer into small particles, which will then be brought into the spaces between the blades as the snow plow is advanced. The blades are rotated at such speed that the snow carried by them will be thrown by centrifugal force outwardly through the chute 21 and to a considerable distance. In the event that a strong wind is blowing across the roadway being cleaned, then the operator adjusts the circular rim 18 within the semi-circular rim 17 so that the snow will be thrown in the direction with the wind. By having the advanced edges of the blades extended in the line of their rotation, and forwardly, these blades will enter the snow and rapidly force it rearwardly into the trough-shaped blades from which it is thrown radially by centrifugal force. I preferably make my improved snow plow of such size that it will cut away a path substantially the width of the wheels on the motor vehicle, and when this is done, then, obviously, the plow will be of such small size that it will not interfere with the operator's visibility of the roadway. However, because my improved snow plow can be rotated at high speed the motor and vehicle can be driven rapidly and a comparatively great amount of snow removed with a minimum of time.

I claim as my invention:

1. A snow plow, comprising a frame adapted to be attached to the front of a motor vehicle, a scoop having a substantially straight forwardly-projecting lower edge for cutting into snow near a roadway, substantially upright, forwardly-extended side edges, and an upright substantially semi-circular rim at the rear of the scoop, a snow removing device, comprising a circular rim in upright position fitted into said semi-circular rim and capable of being rotated within said semi-circular rim, means for adjustably fixing the circular rim at various positions within the semi-circular rim, a tangentially arranged discharge spout carried by the circular rim, a disc rotatably mounted within the circular rim, a series of radially arranged trough-shaped blades fixed to the front of said disc, and means for rotating said disc.

2. A snow plow, comprising a frame adapted to be attached to the front of a motor vehicle, a scoop having a substantially straight forwardly-projecting lower edge for cutting into snow near a roadway, substantially upright, forwardly-extended side edges, and an upright substantially semi-circular rim at the rear of the scoop, a snow removing device, comprising a circular rim in upright position fitted into said semi-circular rim and capable of being rotated within said semi-circular rim, means for adjustably fixing the circular rim at various positions within the semi-circular rim, a tangentially arranged discharge spout carried by the circular rim, a disc rotatably mounted within the circular rim, a series of radially arranged trough-shaped blades fixed to the front of said disc, the forward edges of said blades being inclined in the direction of

their rotation, and forwardly, and means for rotating said disc.

3. A snow plow, comprising a frame adapted to be attached to the front of a motor vehicle, a scoop having a substantially straight forwardly-projecting lower edge for cutting into snow near a roadway, substantially upright, forwardly-extended side edges, and an upright substantially semi-circular rim at the rear of the scoop, a snow removing device, comprising a circular rim in upright position fitted into said semi-circular rim and capable of being rotated within said semi-circular rim, means for adjustably fixing the circular rim at various positions within the semi-circular rim, a tangentially arranged discharge spout carried by the circular rim, a disc rotatably mounted within the circular rim, a series of radially arranged trough-shaped blades fixed to the front of said disc, sharpened ice cutter teeth fixed to the advance edges of said blades and extended in the direction of rotation of the blades, and forwardly, and means for rotating said disc.

4. A snow plow, comprising a frame adapted to be attached to the front of a motor vehicle, a scoop having a substantially straight forwardly-projecting lower edge for cutting into snow near a roadway, substantially upright, forwardly-extended side edges, and an upright substantially semi-circular rim at the rear of the scoop, a snow removing device, comprising a circular rim in upright position fitted into said semi-circular rim and capable of being rotated within said semi-circular rim, means for adjustably fixing the circular rim at various positions within the semi-circular rim, a tangentially arranged discharge spout carried by the circular rim, a disc rotatably mounted within the circular rim, a series of radially arranged trough-shaped blades fixed to the front of said disc, sharpened ice cutter teeth fixed to the advance edges of said blades and extended in the direction of rotation of the blades, and forwardly, and means for rotating said disc, said teeth on the various blades being spaced at different distances from the inner ends of the blades.

5. A snow plow, comprising a frame adapted to be attached to the front of a motor vehicle, a scoop having a substantially straight forwardly-projecting lower edge for cutting into snow near a roadway, substantially upright, forwardly-extended side edges, and an upright substantially semi-circular rim at the rear of the scoop, a snow removing device, comprising a circular rim in upright position fitted into said semi-circular rim and capable of being rotated within said semi-circular rim, means for adjustably fixing the circular rim at various positions within the semi-circular rim, a tangentially arranged discharge spout carried by the circular rim, a disc rotatably mounted within the circular rim, a series of radially arranged trough-shaped blades fixed to the front of said disc, means for rotating said disc, and a hood detachably mounted on the outer end of the discharge spout and shaped to deflect material downwardly.

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