

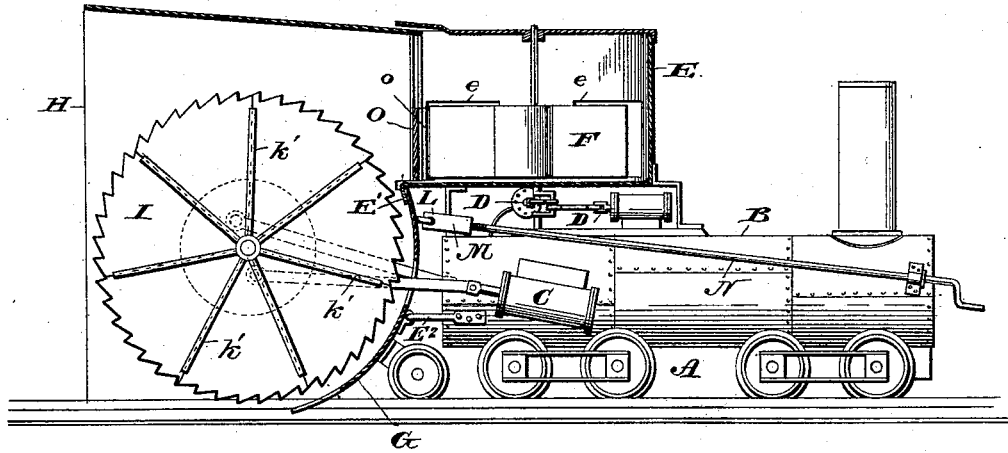
(No Model.)

T. RYE.  
SNOW PLOW.

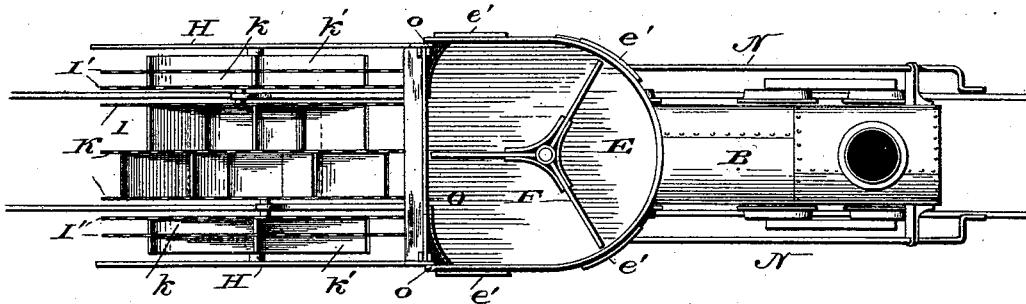
No. 453,942.

Patented June 9, 1891.

*Fig. 1.*



*Fig. 2.*

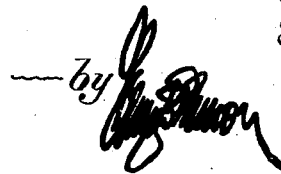


Thor Rye.

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Witnesses

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# UNITED STATES PATENT OFFICE.

THOR RYE, OF MINNEOTA, MINNESOTA.

## SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 453,942, dated June 9, 1891.

Application filed January 17, 1891. Serial No. 378,124. (No model.)

*To all whom it may concern:*

Be it known that I, THOR RYE, a citizen of the United States of America, residing at Minneota, in the county of Lyon and State of Minnesota, have invented certain new and useful Improvements in Snow-Plows; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in snow-plows.

The object of the invention is to provide a device for removing snow and ice from railway-tracks by elevating the same above the road-bed and depositing it on either side of the track, and is further adapted to be used for removing sand or dirt from the track in case of land-slides; and it consists of a series of circular saws made up in sections, which are mounted on a central shaft and provided with scoops or paddles for elevating the material elevated by said saws and depositing it in a receptacle carried by the frame above the road-bed, from which it is thrown out by revolving paddles on one or both sides of the track, as may be desired; also, in providing means for raising and lowering the saws above and below the level of the tracks.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view, partly in section. Fig. 2 is a plan view with the top of the structure removed.

The main truck or frame A. of the snow-plow is of ordinary construction and carries a boiler B, the usual fire-boxes, and appendages. To the sides of the frame and connected with the boiler are cylinders C C, the pistons of which are connected by pitman-rods to wrist-pins located between the sets of saw-blades, and by means of these piston-rods the saw-blades may be rotated.

D refers to pistons, the pitmen of which engage with the vertical crank-shaft, upon which the fan or propeller-blades are secured.

The frame E is located preferably over the front portion of the boiler and is provided with a series of openings *e e*, which are adapted to be closed by doors *e'*, the blades of the

wheel F within the structure E being of substantially the same height as the openings *e*. The structure E is covered by a suitable plate or top, and the crank-shaft upon which the blades F are mounted has a bearing therein. A plate G extends downwardly from the superstructure E and is curved forward, slots being provided in the same on a line with the rails of the road. This curved projecting plate has also openings, through which the pitman-rods which drive the saw-blades pass, and also rearwardly-projecting portions which carry truck-wheels, as shown. The curved plate G is hinged or otherwise secured to the boiler by means of brace-rods *E'*, so as to have a forward or backward movement thereon, the forward movement of the upper end being limited by the stop *E'*, formed by bending the floor, as shown.

H refers to side plates, between which is journaled a series of circular saws I, made up of a suitable number of sections. The outer saw-blades *I'* are arranged in pairs, between which are located partition-plates *k*, and the outer saw-blades have rigidly secured thereto plates *k'*. Separated from the outer pairs of saw-blades are three or more blades K, between which are secured paddles, the central set of blades being adapted to operate between the rails, while the outer sets operate beyond said rails. The blades hereinbefore referred to are provided with enlarged central hubs, these hubs forming the bottom or base of the elevating-receptacle. The wrist-pins to which the pitmen are connected are secured to the central hub and to the hubs of the cutters located over the rails. In order that the back plate G and side plates may be adjusted, I provide said side plates and the back plate with links L, which carry loops M, having threaded openings, through which pass the threaded ends of rods N, the opposite ends being fixed in suitable brackets and provided with crank-handles. By turning these threaded rods the saws and the carrying-frame can be raised and lowered, so that the saws will operate upon the obstructions to the track either above or below the level of the rails.

A snow-plow thus constructed may be provided with its own propelling means, or may be adapted to be coupled in front of an ordi-

nary locomotive, and in practice the circular blades being rotated at a very high rate of speed will loosen the snow or ice which may be upon the road, and when loosened will be elevated and deposited in the receptacle E, from which it will be thrown by the wheel F, which also revolves at a high rate of speed.

The engine which propels the blades F is provided with the usual means for changing the rotation of the crank-shaft which it drives, so that the propeller-blades may be driven with or against the sun to throw the material to the right or left of the track, as may be desired. The upper portions of the side plates H carry a transverse partition-board O, which is arranged as shown, and said partition-board has attached to its rear outer corner curved plates o, which cover the straight corners at the junction of the curved plate G and rear ends of the upper portion of the side plates.

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

1. The combination, in a snow-plow, of a series of circular serrated cutters arranged as shown, so that independent pairs of cutters will be located immediately above the rails, said cutters having enlarged hubs and radiating carriers at right angles with the cutting-blades, substantially as set forth.

2. The combination, in a snow-plow, of a series of circular cutters journaled upon a hinged frame, means for raising and lowering said hinged frame, and a receptacle, as E, having a horizontally-revolving discharge-wheel, substantially as set forth.

3. The combination, in a snow-plow, of a structure providing a side frame, a curved back plate G, secured thereto, a receptacle E,

having openings e, said receptacle containing a discharge-wheel, a vertical series of cutters having carriers mounted between the side frames, means for vertically adjusting the cutters, and engines for revolving the cutters and discharge-wheel, substantially as set forth.

4. The combination, in a snow-plow having cutters and elevators, substantially as shown, of the pivoted frame having truck-wheels at its rear end, together with screw-threaded rods for vertically adjusting said frame, substantially as set forth.

5. The combination, in a snow-plow, radial cutters having elevating-scoops, as shown, of a receptacle having a horizontally-revolving discharge-wheel, a partition-plate O, carried by the side frames H, said partition-board having curved plates o adjacent to its ends, substantially as set forth.

6. In an excavator for railways, the combination of a steam-boiler and frame carrying a rigid structure E, having openings e and doors for closing said openings, a horizontally-revolving discharge-wheel located therein, a front pivoted frame consisting of side pieces and a curved plate G, pivotally connected to the boiler and frame, means for vertically adjusting the same, said frame enclosing a series of vertical cutters, said cutters being made up of segments attached to enlarged central hubs, and radiating partitions secured to the enlarged hubs and segments, substantially as set forth.

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

THOR RYE.

Witnesses:

G. C. MANTEL,  
W. A. CROWE.