

(No Model.)

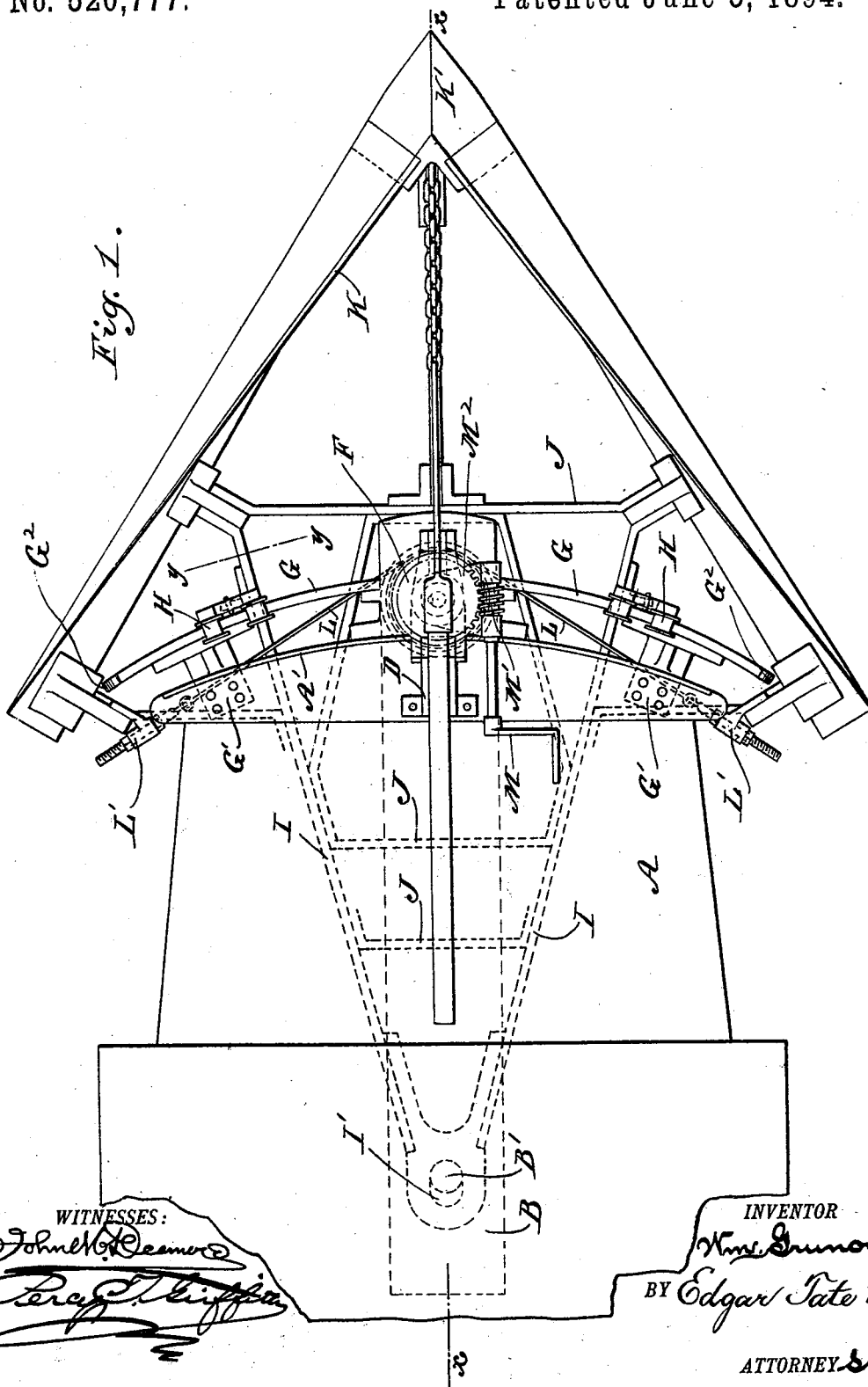
2 Sheets—Sheet 1.

W. GRUNOW, Jr.
SNOW PLOW.

No. 520,777.

Patented June 5, 1894.

Fig. 1.



WITNESSES:

John H. Deemer
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INVENTOR

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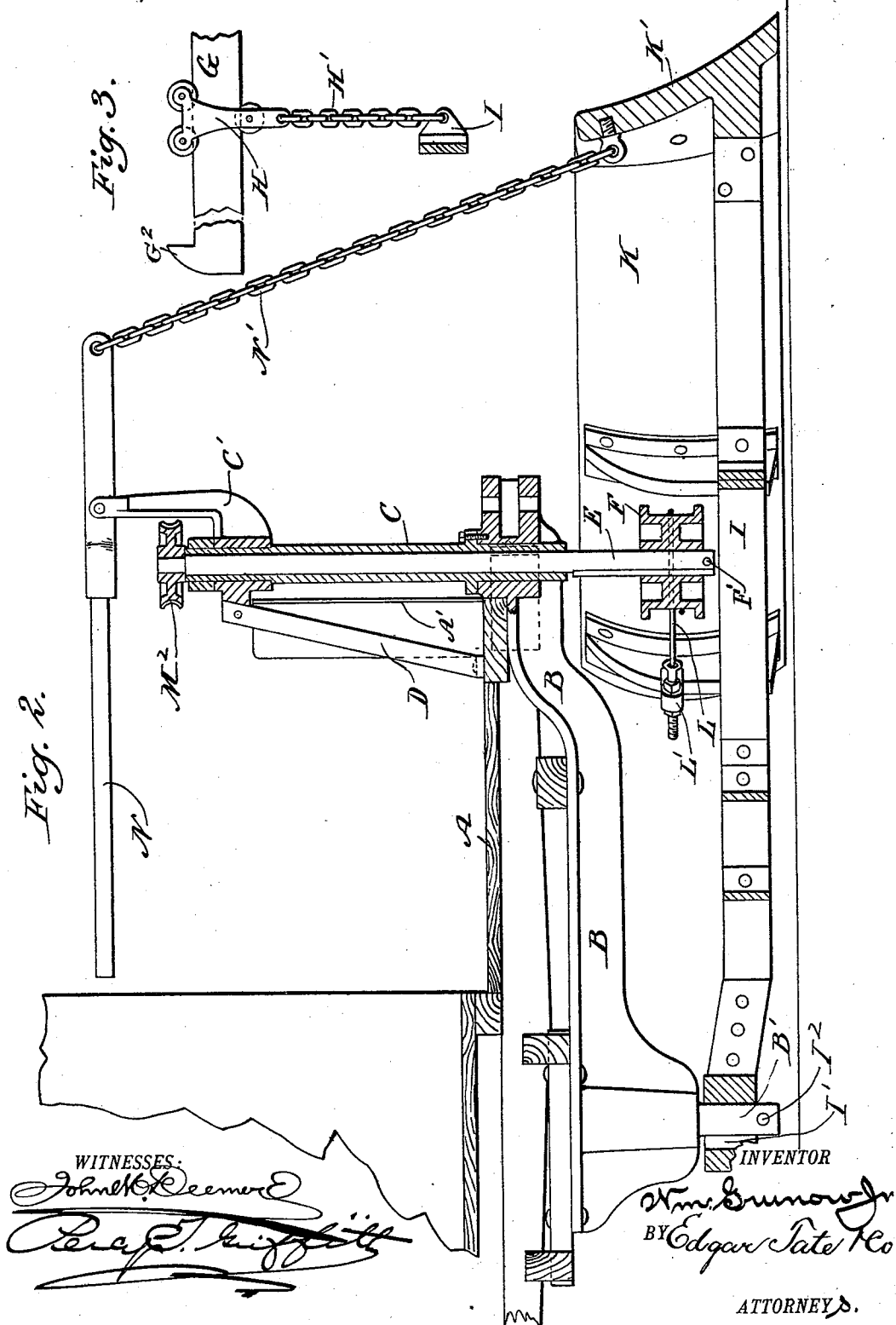
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UNITED STATES PATENT OFFICE.

WILLIAM GRUNOW, JR., OF MOUNT VERNON, NEW YORK, ASSIGNOR TO
ZALMON GOODSSELL, OF BRIDGEPORT, CONNECTICUT.

SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 520,777, dated June 5, 1894.

Application filed February 15, 1894. Serial No. 500,212. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GRUNOW, JR., a citizen of the United States, and a resident of Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Snow-Plows for Street and other Railways, of which the following is a specification.

This invention relates to snow plows for street and other railway cars, or locomotives, and has for its object to provide a device of this character by means of which the snow may not only be swiftly and thoroughly cleared from the track or road bed, but shall at the same time be thrown to each side of the track, or if desired, to one side, where two or more tracks are closely adjoining.

A further object of the invention is to enable the device to be readily applicable to, or removable from, the car or other vehicle on which it is to be employed, not only for economy of space in storing during the spring and summer and so that the cars when not used for the plows may be otherwise employed, but also for the reason that such a removable plow could, conveniently, where circumstances required, be attached to the ordinary passenger or freight cars of daily use.

The invention consists in the novel construction and arrangement of parts herein-after more fully described and particularly set forth.

In the accompanying drawings, in which like letters of reference designate corresponding parts throughout all the views, Figure 1 is a plan view of the platform of a car provided with a snow plow embodying my invention. Fig. 2 is a vertical longitudinal section of the same on the line $x-x$, and Fig. 3 is a detail view of the supporting-carriage being a partial section on the line $y-y$, Fig. 1.

Beneath the platform A of the car and the body of the latter, I secure a central girder B provided at the rear with a short downwardly projecting rod B', the said girder ranging from the end of the car body to slightly beyond that of the platform.

A tubular standard C is secured to and extends through this girder in front of the dashboard A', being secured behind the latter by the brace D. Within this standard C is jour-

naled a shaft E depending from which is the drum F, splined upon the said shaft and held thereon by the key or pin F'.

At each side of the platform are affixed supporting plates G' by means of which the segmental guides G are held thereon, the said guides also being secured at one end to the girder B and having the lugs G² on their free ends. Upon the guides G are imposed carriages H, adapted to travel thereon, and from which are suspended by chains H', the longitudinal beams I, connected by the cross-ribs J. These beams extend obliquely beneath the platform joining at the rear thereof and are loosely secured to the girder B by means of the short rod B' which passes through a slot I' in the beams, a pin I² holding the beams in place upon the said rod.

The plow K which consists of two curved pieces of sheet metal joined at acute angles is bolted or otherwise secured to the beams I and cross-ribs J, the share K' of the plow being of substantially similar height to that of the car platform from the track, and the mold-boards being shaped or folded over at so sharp an angle as to be sectionally semi-circular at the ends.

Cables L fastened to the drum F connect to turnbuckles L' at each side of the mold-boards, whereby the plow may, by rotation of the drum, be pointed either to the right or left of the track. A crank M engaging by a worm-gear M' with the toothed wheel M² upon the shaft E, serves to rotate this shaft and consequently the drum.

Projecting upward from the standard C is an arm C' in which is pivoted the lever N, connecting by the chain N' with the top of the plow share. By means of this lever the plow may be raised at the point, should there be any small obstructions, such as ice or stones, in the way thereof.

The plow being attached to the car, which may be either an ordinary passenger or freight car, or one specially designed for the purpose, the said car is propelled by any desired means, and the plow striking the snow in front the latter is forced along the sides of mold-boards thereof, and deposited upon the road at either side of the track.

Where two tracks are adjacent, and it is

consequently desired to discharge the snow only toward the side of the road opposite to the adjoining track, or where any other reasons render this a desideratum, the share of the plow is pointed to the right or to the left as the case may be, by turning the crank M, which rotates the drum F, whereby one of the cables L is wound upon the drum, and the other unwound, thus swiveling the plow around to the desired direction. The lever N is depressed whenever obstacles are visible upon the track, thereby raising the plow and enabling it to clear such obstructions.

When the plow is not in use, the pin I² securing the beams I, and if desired the pin F' beneath the drum F, is withdrawn and the several chains and cables detached, the body of the apparatus then falling to the ground. Or the girder B may be unbolted and all the parts wholly removed from the car.

I do not confine myself to the exact details of mechanism and construction herein shown, as the same may be changed or varied in many particulars, as circumstances may require, or render desirable.

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

1. A snow plow for street and other railways, consisting of a metal body swiveled to the front of a car and adapted to be raised to clear obstructions upon the track, substantially as shown and described.

2. A snow plow for street and other railways, consisting of a metal body suspended from carriages traveling upon guides at the front of the car and adapted to be directed to either side of the track, and means for raising the point of the plow to clear obstructions, substantially as shown and described.

3. A snow plow consisting of a metal body secured to a frame suspended from carriages traveling upon guides at the front of the car and supported beneath the car-body, means for directing the plow to either side of the track, and a lever upon the car-platform connecting with and adapted to raise, the point of the plow, substantially as shown and described.

4. A snow plow consisting of a metal body secured to a frame suspended from carriages traveling upon guides at the front of the car and supported beneath the car-body, a drum depending from the car-platform and connected by cables with each side of the plow, and a crank upon the platform gearing with the shaft of the drum and adapted to rotate the same, substantially as shown and described.

5. A snow plow consisting of a metal body, secured to a frame suspended by chains from carriages traveling upon guides at the front of the car and removably supported beneath the car-body, a drum fixed upon a shaft at the front of the car-platform, cables connected to each side of the plow being partially wound upon the said drum, a crank

upon the platform gearing with the shaft to rotate the drum, substantially as shown and described.

6. A snow plow consisting of a metal body secured to a frame suspended by chains from carriages traveling upon guides at the front of the car and removably supported beneath the car-body, a standard arranged upon the platform, a shaft extending therethrough, a drum fixed upon the said shaft cables connecting each side of the plow with the drum, a crank meshing by means of a worm-gear with the said shaft to rotate the drum, an arm projecting from the standard, a lever pivoted therein, and a chain connecting the said lever with the point of the plow, substantially as shown and described.

7. In a snow-plow, the combination with a girder ranging beneath the car-body and projecting in front of the platform, a shaft extending through the girder at the front of the platform, a drum upon the said shaft and a crank adapted to rotate the drum, of a metal body secured to a frame supported at the rear of the girder and suspended at the front from carriages traveling upon guides, cables connecting the drum with the metal body at each side, and a lever upon the platform connecting with the point of the plow, substantially as shown and described.

8. In a snow plow the combination, with a girder ranging beneath the car-body and projecting in front of the platform, a rod depending from the girder at the rear, a tubular standard extending through the girder at the front of the platform, a shaft journaled in the said standard, a drum fixed upon the shaft, a worm-gear crank meshing with a gear-wheel upon the shaft and a lever pivoted above the said crank, of a metal body comprising a share and mold-boards secured to a frame removably supported upon the rod at the rear of the girder and suspended by chains from carriages traveling upon guides at each side of the said girder, cables connected to each side of the plow and partially wound upon the drum, and a chain connecting the lever above the shaft with the point of the plow, substantially as shown and described.

9. In a snow plow the combination with a girder ranging beneath the car-body and projecting in front of the platform, a rod depending from the girder at the rear, a tubular standard extending through the girder in front of the dash-board and secured by a brace behind the same, a shaft journaled in the said standard, a drum splined upon the shaft and removable therefrom, a worm-gear crank meshing with a gear-wheel upon the shaft and adapted to rotate the drum, a lever pivoted in an arm extending upward from the standard, and segmental guides affixed to the car platform at each side of the girder, of a body consisting of two pieces of metal joined at angles, comprising a share and mold-boards, and bolted to a frame re-

movably supported upon the rod at the rear
of the girder, and suspended by chains from
carriages traveling upon the segmental
guides, cables connected to each side of the
5 plow, and partially wound upon the drum,
and a chain connecting the point of the plow
with the lever above the standard, substan-
tially as shown and described.

In testimony that I claim the foregoing as
my invention I have signed my name, in pres- 10
ence of two witnesses, this 31st day of Janu-
ary, 1894.

WILLIAM GRUNOW, JR.

Witnesses:

PERCY T. GRIFFITHS,
EDWARD M. CLARK.