

(No Model.)

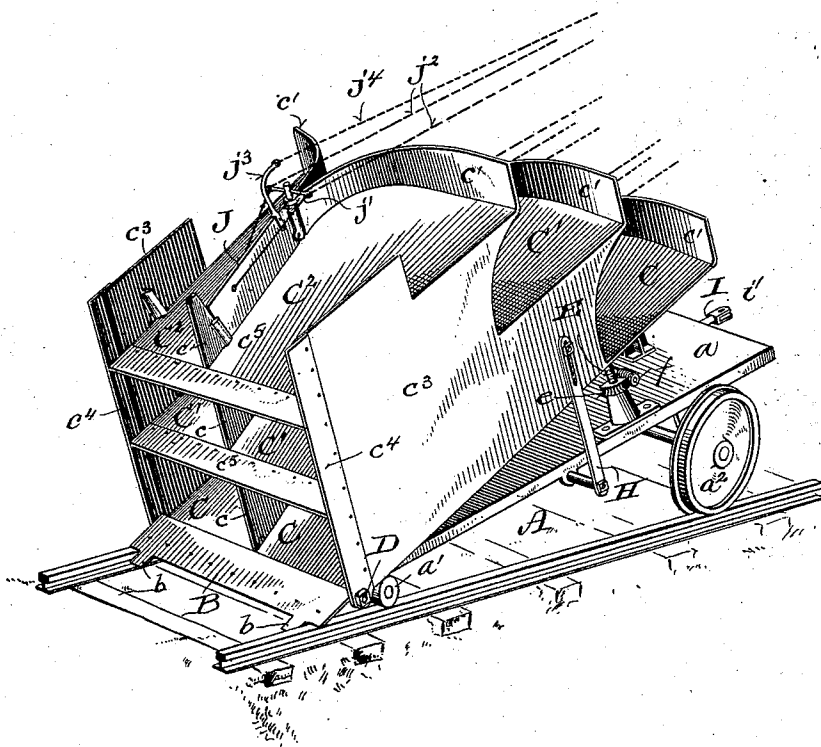
3 Sheets—Sheet 1.

A. EVEN.
SNOW PLOW.

No. 572,747.

Patented Dec. 8, 1896.

Fig. 1.



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Corner 18.

(No Model.)

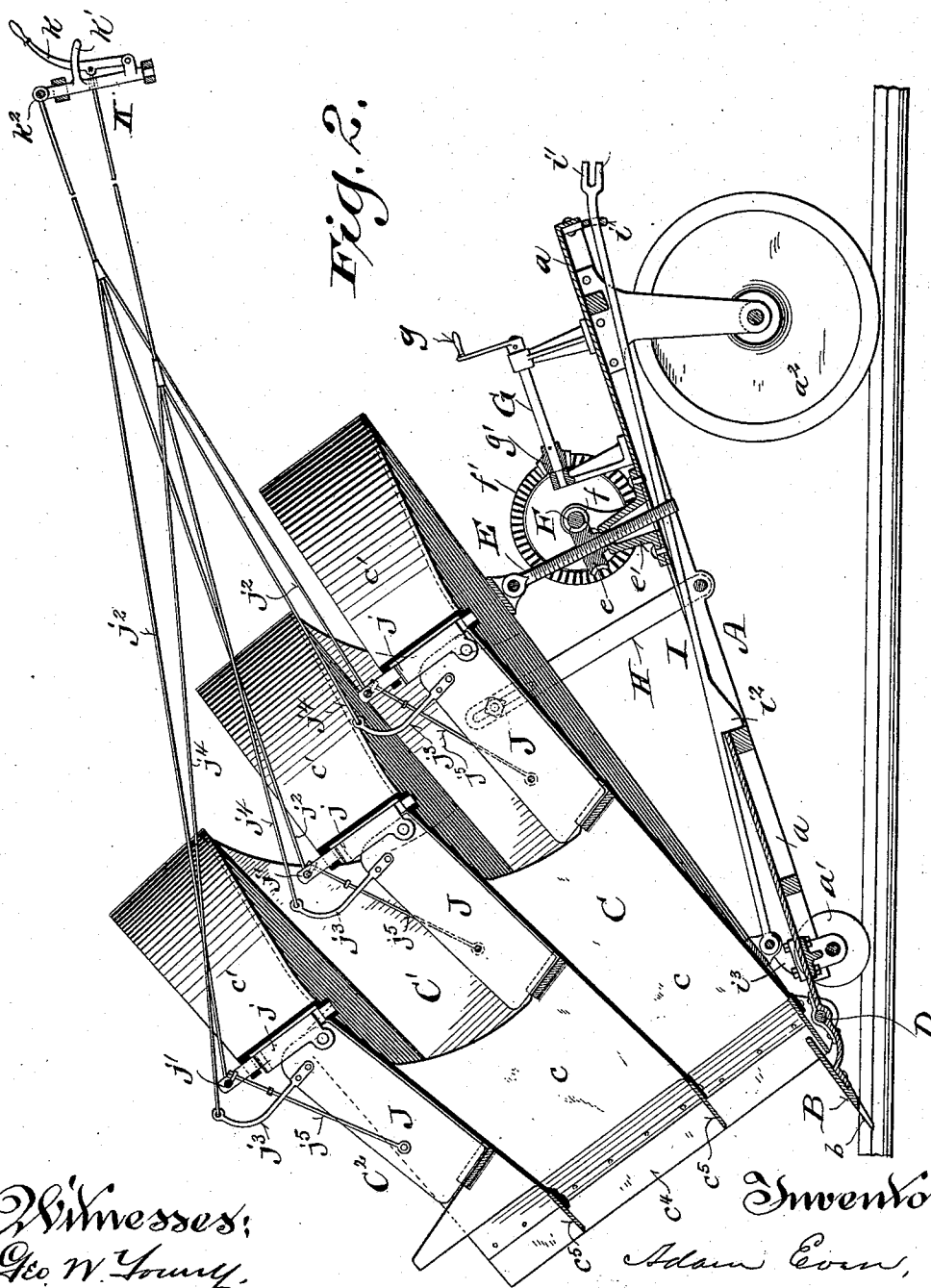
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A. EVEN.
SNOW PLOW.

No. 572,747.

Patented Dec. 8, 1896.

Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

A. EVEN.
SNOW PLOW.

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Fig. 3.

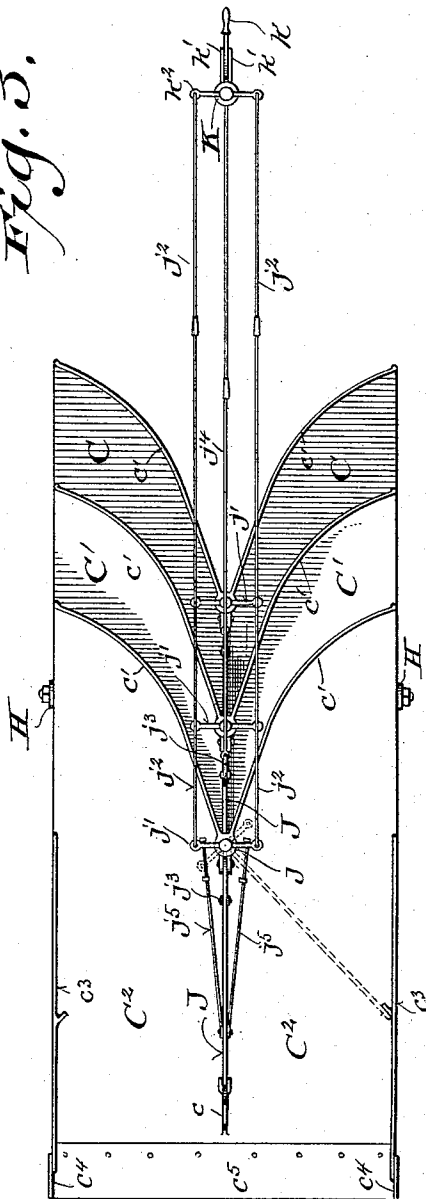
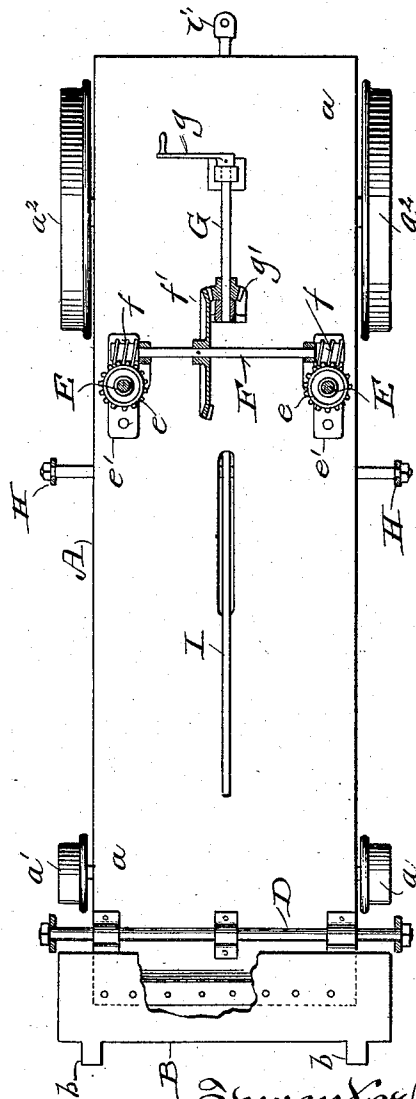


Fig. 4.



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UNITED STATES PATENT OFFICE.

ADAM EVEN, OF PORT WASHINGTON, WISCONSIN.

SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 572,747, dated December 8, 1896.

Application filed April 10, 1896. Serial No. 586,938. (No model.)

To all whom it may concern:

Be it known that I, ADAM EVEN, of Port Washington, in the county of Ozaukee and State of Wisconsin, have invented certain new and useful Improvements in Snow-Plows; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The main object of my invention is to remove snow from railway-tracks and in the attainment of that object to prevent the massing and compacting of the snow and the consequent clogging and stalling of the plow, and to divert the snow to either or both sides of the track.

It consists of certain novel features in the construction and arrangement of component parts of the plow, as hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a perspective view of my improved snow-plow. Fig. 2 is a vertical longitudinal section, on an enlarged scale, cutting the plow near the center. Fig. 3 is a plan view of the chutes constituting the upper or main portion of the plow; and Fig. 4 is a plan view of the truck, the upper portion of the plow being removed and its connections with the truck shown in horizontal section.

A designates a truck which constitutes the base of the plow. It consists of a frame or platform *a*, inclined forwardly and downwardly toward its front end and mounted upon suitable wheels *a'* *a''*, the front wheels *a'* being smaller than the rear wheels *a''*. The frame or platform *a* is provided at its front end with a scraper *B*, formed therewith or rigidly attached thereto. It is inclined forwardly and downwardly toward its front edge, which extends transversely across the track as close as practicable to the road-bed. It is formed with flange-clearers *b b*, which project from its front edge downwardly inside of the rails.

C, C', and C² designate a number of pairs of chutes arranged one pair over another.

They may be constructed of any suitable material, such as sheet metal or wood. The chutes of each pair are separated from each other at the center of the plow by a vertical partition *c*, which branches at its rear end into outwardly and rearwardly curved or inclined wings *c'* *c'*. The bottoms of the several chutes are preferably inclined upwardly and inwardly toward their rear ends, so as to more readily discharge the snow through lateral openings in the plow at the rear ends of the chutes. The sides of the chutes *c³ c³* are formed or provided at the front with vertically-disposed metallic plates or cutters *c⁴ c⁴* for cleaving the snow in the path of the plow from that on either side. The bottoms of the chutes are also formed or provided at the front of the plow with like or similar cutters *c⁵ c⁵*, and the front ends of the partitions *c c* constitute or are provided with cutters for dividing the snow at the center of the plow. The distance between the bottoms of adjoining tiers of chutes increases toward the rear end of the plow, so as to allow sufficient clearance for the snow and prevent its choking or clogging the chutes.

The upper part of the plow, consisting of the chutes, is hinged at the bottom and front end by a cross-rod *D* to the front end of the truck frame or platform *a*, and the bottom of the chutes *C C* projects at its front edge underneath the rear upper edge of the scraper *B*, as shown in Fig. 2. In this way the chutes may be raised or lowered at their rear ends, so as to vary their pitch or inclination without changing the position of the scraper *B*, which is permanently adjusted and has a certain fixed relation to the track-rails and road-bed.

The chutes are adjustably supported at their rear ends by screws *E E*, pivoted at their upper ends to the bottom of the chutes *C* and threaded in the hubs of worm-gears *ee*, which are supported and arranged to turn in or upon stands *e'* on the platform *a* of the truck. The worm-gears *ee* are engaged by worms *f f* on a horizontal shaft *F*, which is mounted in suitable bearings provided therefor on said platform, and is provided with a bevel-gear *f'*. A crank-shaft *G*, also mounted in suitable bearings on said platform at right angles to the shaft *F* and provided with a

crank g and a bevel-pinion g' , meshing with the gear f' , serves as means for manually raising and lowering the rear ends of the chutes and varying their inclination, as may be desired, according to circumstances.

The rear end of the upper part of the plow, comprising the chutes, may be further supported, if desired, by braces $H H$, pivoted at their lower ends to the sides of the truck and adjustably attached at their upper ends to the sides $c^3 c^3$ of the chutes by bolts passing through longitudinal slots in said braces and provided on their outer ends with nuts for clamping the braces to the sides of the chutes.

I is a thrust-bar pivoted at its front end to the bottom of the lower chutes near their front end, and extending rearwardly therefrom through a slot in the platform a and provided at its rear end, which is loosely suspended by a link i from the platform, with a coupling or forked head i' for the attachment of a locomotive, by which the plow is to be driven. The thrust-bar is provided with a depending projection i^2 , adapted to engage with a cross-piece of the frame or platform a , and thereby relieve the connections between the truck and upper portion of the plow of strain, or it may bear at its front end against a block or abutment i^3 , provided on the truck, as shown in Fig. 2, for the same purpose.

The several partitions $c c$ between the chutes at the center of the plow have openings in which gates $J J$ are provided. These gates are pivoted at their rear ends to vertically-disposed turning posts $j j$, which have suitable bearings in said partitions at or near the junction of their diverging branches or wings $c' c'$. Said partitions are formed or provided at the front ends of said openings with vertically-arranged grooves or cleats to receive the front ends of said gates and to hold them firmly in place in their central positions. The sides $c^3 c^3$ of the chutes are also provided inside with stops, against which the gates J are turned, as indicated by dotted lines in Fig. 3.

K designates a main turning post for operating the several gates $J J$. It is supported in an upright position in suitable bearings, and may be placed in the pilot of the locomotive or at any other convenient point. It is provided with a lever k , which is fulcrumed thereto and held and guided between arms k' . The several turning posts j are provided at or near their upper ends with cross rods or arms j' , which are connected on opposite sides of the posts by cables $j^2 j^2$ with a corresponding cross rod or arm k^2 of the main turning post K . Each gate is provided near its rear end with an upwardly-projecting arm j^3 , rigidly attached thereto, and connected at its upper end by a cable j^4 with the lever k . The several cables j^2 may be joined together and a single connection made with the cross-rod k^2 on each side of the post K . The cable j^4 may also be joined in like manner and a single connection made with the lever k , as

shown in Fig. 2. By means of the lever k and its connections above described the several gates $J J$ may be simultaneously elevated at their front ends clear of the grooves or cleats in or between which they are held in line with partitions $c c$, and then turned to either side of the plow, so as to discharge the snow entirely on the opposite side of the plow. In the same way the gates may be simultaneously turned to their central positions.

To relieve the connections between the gates and their turning posts j of strain and to assist in turning the gates, I provide braces j^5 , which are pivoted at their front ends to opposite sides of the gates and have sliding connections with the cross-rods j' on opposite sides of the turning posts j , said braces having suitable stops for limiting their endwise movement through said cross-rods. When the gates J are tilted upward, so as to carry the stops on said braces into engagement with the cross-rods j' , said braces will aid in turning the gates and thus relieve their connections with the turning post j of strain.

The rear end of the upper part of the plow is raised or lowered by the mechanism hereinbefore described to vary the inclination of the chutes according to the depth and condition of the snow and the speed at which the plow is run.

By the term "cable" as herein employed I intend to include its obvious equivalents, a wire, chain, or rope made of wire, hemp, or other fiber.

Various changes in minor details of construction may be made within the intended scope of my invention.

To guide the cables j^4 and facilitate the operation of the gates J , particularly in lifting and holding them up when they are turned to either side, said cables may pass between pulleys or sheaves (not shown) mounted on the upper ends of the turning posts j , and similar guiding-pulleys may also be provided wherever they are found necessary or desirable in practice, as upon the main turning post K , to prevent the cable with which the branches j^4 are joined from binding against said post when it is turned to either side. Detachable connections may also be provided between the cables secured to the cross-rod k^2 and to the lever k of post K and the branches j^2 and j^4 , respectively, so that when the main turning post K is placed on the locomotive they may be readily disconnected for detaching the plow from the locomotive, leaving said post K and its attachments undisturbed.

I am aware that it is not new to construct a snow-plow with a series of chutes one above another for conducting the snow rearwardly and discharging it at the sides of the plow so as to prevent the upper strata from compacting the lower strata and causing it to choke and stall the plow, and I do not broadly claim such construction herein, but confine my

claims to certain improvements in such a plow whereby its operation is facilitated and rendered more effective.

I claim—

5 1. In a snow-plow for railways, the combination of a truck provided at its front end with a scraper rigidly immovably secured thereto and projecting forwardly and downwardly toward its front edge close to the track, a number of pairs of chutes arranged one pair above another, and hinged or pivoted to the front part of the truck, and an adjustable connection between said truck and chutes at a distance to the rear from their hinge or pivot connection, substantially as and for the purposes set forth.

2. In a snow-plow for railways, the combination with a suitable truck, of a number of pairs of chutes mounted upon said truck and arranged one pair above another, partitions between the chutes having openings therein gates hinged or pivoted in said openings so as to be turned to either side and discharge the snow from both chutes of each pair at the opposite side of the plow, and means for simultaneously turning said gates from the center to either side, and vice versa, substantially as and for the purposes set forth.

3. In a snow-plow for railways, the combination of a truck and a number of chutes arranged in pairs one above another and mounted upon said truck, vertically-disposed turning posts arranged centrally between said chutes, gates pivoted at their rear ends to said posts and provided with upwardly-projecting arms, a main turning post provided with a lever fulcrumed thereto and with a cross-rod connected on opposite sides of the post by cables with cross rods or arms of the turning posts to which said gates are pivoted, and cables connecting the upwardly-projecting arms of said gates with said lever, substantially as and for the purposes set forth.

4. In a snow-plow for railways, the combination of a suitable truck, chutes hinged or

45 pivoted at or near the bottom and front end to said truck, one or more screws pivoted to the bottom of said chutes at a distance to the rear from their hinge or pivot connection with the truck, worm-gears carried by the truck 50 and threaded on said screws, worms meshing with said gears, and a crank for turning said worms, substantially as and for the purposes set forth.

5. In a snow-plow for railways, the combination of a truck, chutes hinged or pivoted at or near the bottom and front end of the plow to said truck, and a thrust-bar pivoted at its front end to the bottom of the chutes and provided at its rear end with a coupling for the 60 attachment of a locomotive, substantially as and for the purposes set forth.

6. In a snow-plow for railways, the combination of a truck having a forwardly and downwardly inclined platform or frame which 65 is provided at its front end with a scraper rigidly secured thereto, a number of chutes arranged in pairs one pair above another, and hinged or pivoted at or near the bottom and front end to said truck, an adjustable supporting connection between said chutes and truck for changing the inclination of the chutes, and a thrust-bar pivoted at its front end to the bottom of the chutes near the front end of the plow, and provided with a projection adapted to engage with and propel the truck independently of the chutes, said bar having at its rear end provision for the attachment thereto of a locomotive, substantially as and for the purposes set forth. 80

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ADAM EVEN.

Witnesses:

MICHEAL EVEN,
FRANK SCHUMACHER.