

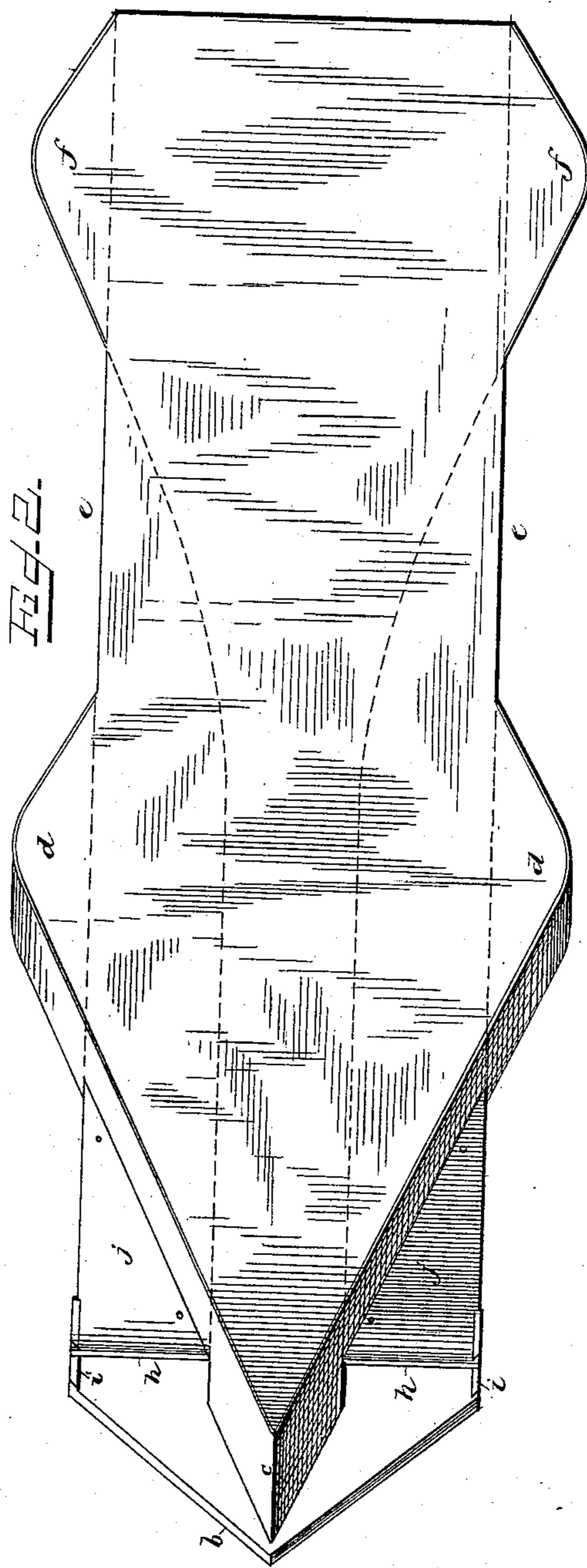
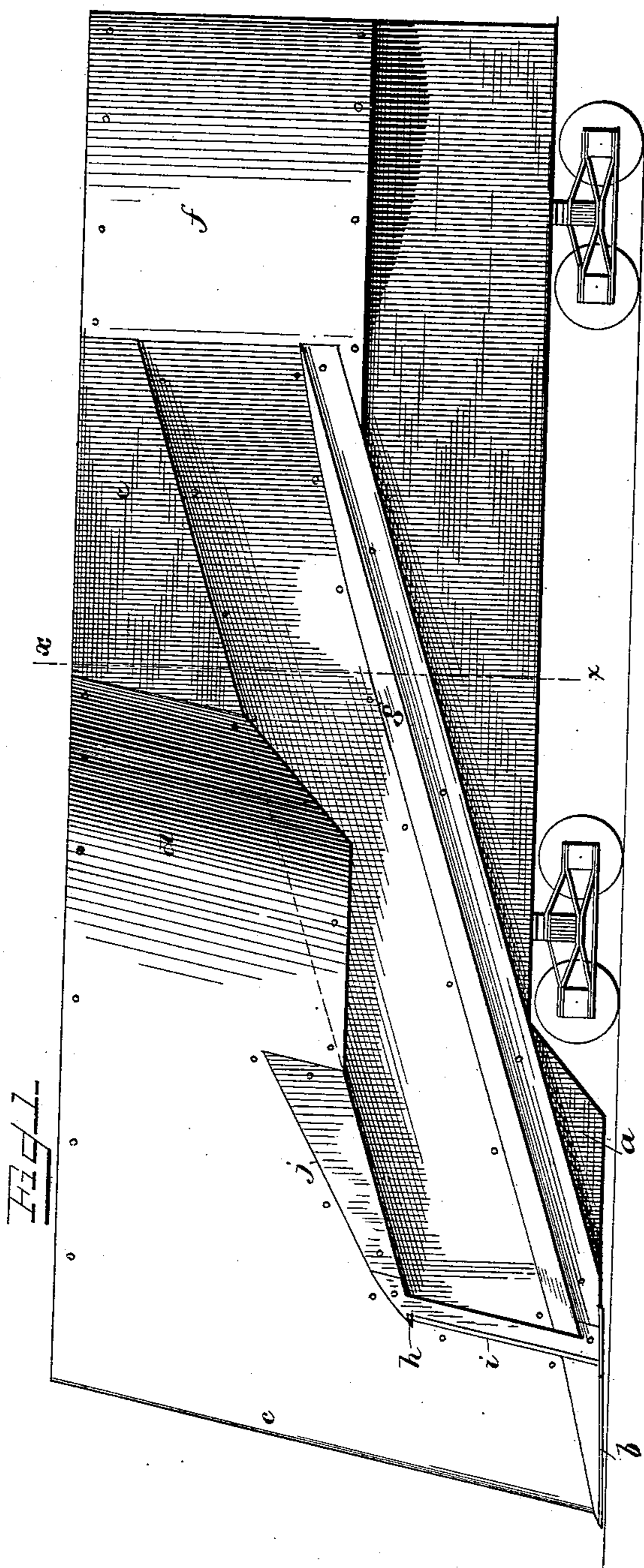
(No Model.)

E. PAYNE.  
SNOW PLOW.

2 Sheets—Sheet 1.

No. 322,849.

Patented July 21, 1885.



WITNESSES  
H. L. Ouraud,  
E. A. Finckel.

INVENTOR:  
Edwin Payne,  
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Attorney.

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Fig. 4-

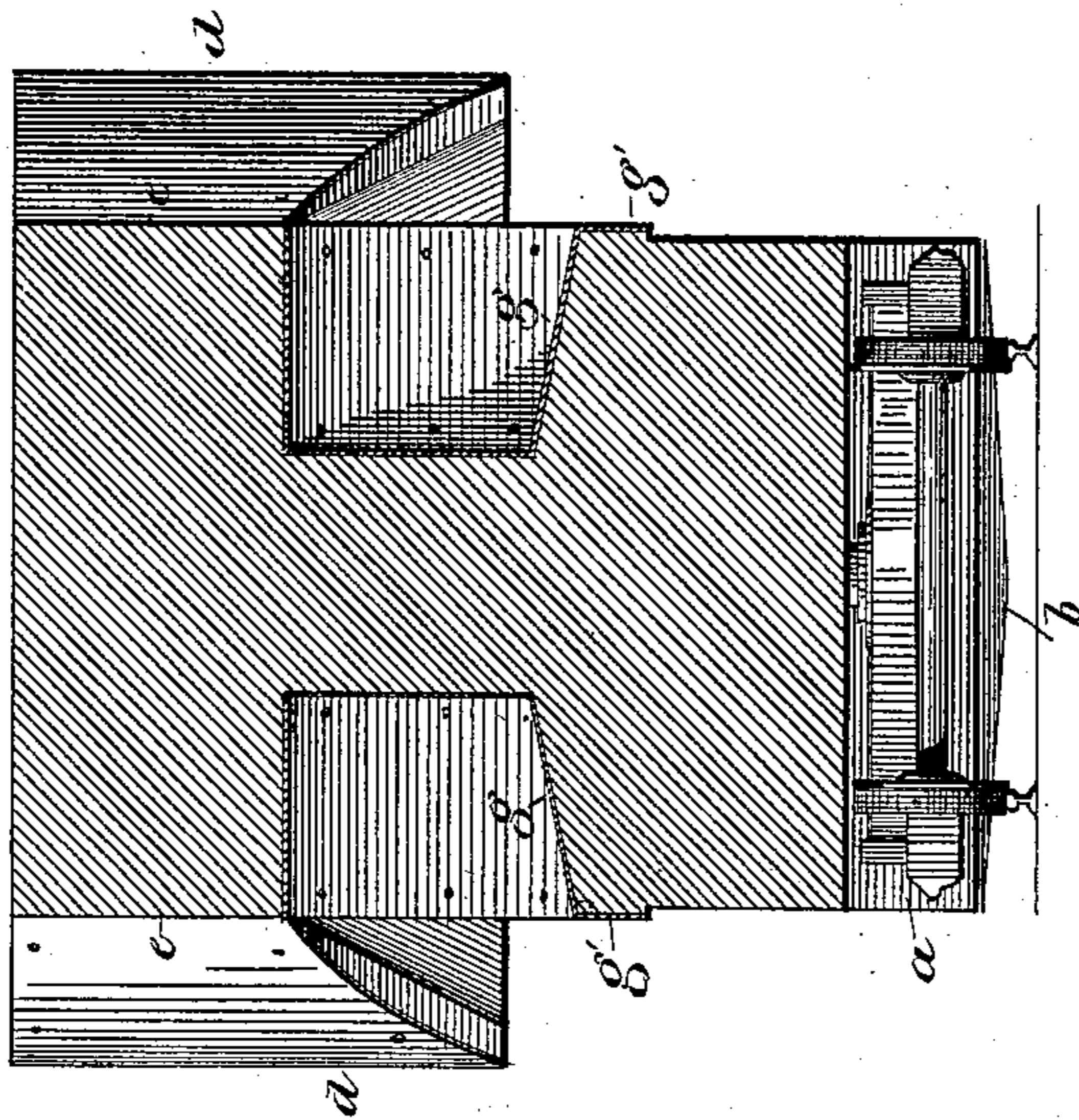
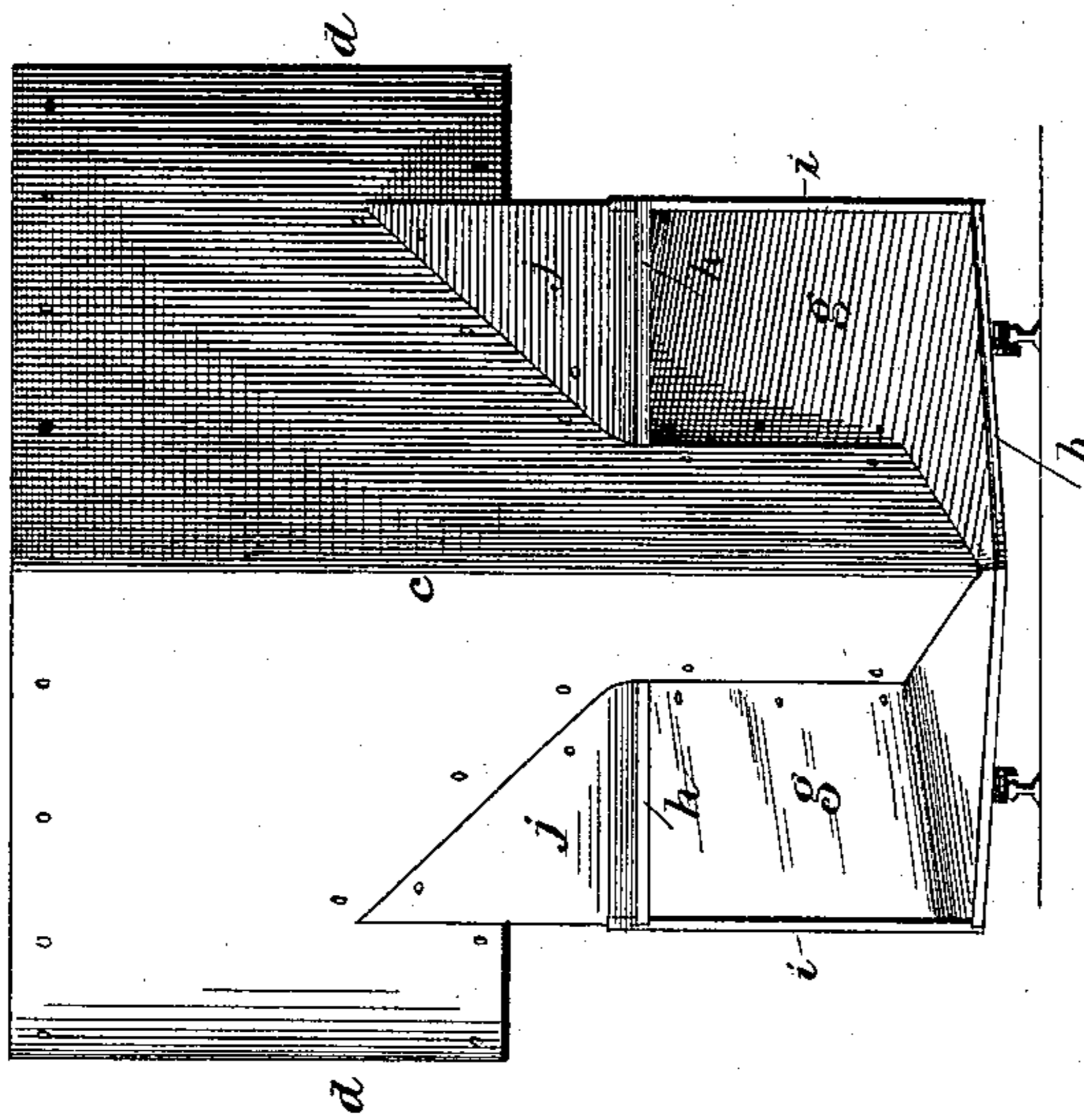


Fig. 3-



WITNESSES

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# UNITED STATES PATENT OFFICE.

EDWIN PAYNE, OF OXBOW, NEW YORK.

## SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 322,849, dated July 21, 1885.

Application filed June 3, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN PAYNE, a citizen of the United States, residing at Oxbow, in the county of Jefferson and State of New York, have invented a certain new and useful Improvement in Snow-Plows, of which the following is a full, clear, and exact description.

This invention relates to a machine for clearing a way through snow on steam and horse railways, carriage-ways, foot-walks, and the like.

The object of the invention is to cut a way through snow, and at the same time throw the top snow away from the cut, the snow taken from the cut being elevated to the top and likewise disposed of laterally.

My investigations have resulted in the conclusion that snow-plows, so called, having movable members, particularly rotary devices, fail in efficiency by reason of the fact that their impact upon the snow tends to harden the snow, and so render it more difficult of penetration and removal; and, furthermore, the snow, if wet and heavy, will stick to such moving members, and still further decrease the efficiency of the apparatus. Outside of these defects, further serious objections consist in the large cost of such apparatus and the frequency of needed repairs.

I by my invention overcome these evils; and my invention consists in a snow-plow rigid in all its parts, mounted upon a suitable truck, and provided with knives and fixed conveyers and scrapers for cutting a way through the snow and disposing of it laterally at the top of the cut, as I will proceed to particularly set forth and claim.

In the accompanying drawings, in the several figures of which like parts are similarly designated, Figure 1 is a side elevation of a machine illustrating my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a front view, and Fig. 4 a vertical cross-section, in the plane of line *x x* of Fig. 1.

I have shown, as an example of my invention, a snow-plow for railways; but, as before intimated, I do not limit my invention to any one such use, and of course may vary the details and proportions and other mechanical features without departing from the spirit and scope of my invention. Any suitable truck may be employed, and upon this I place or

erect my plow, which may be impelled by horse or steam or other power. At the fore end of the truck I arrange a prow, *a*, the leading edge of which is armed with a <-shaped knife, *b*, the top surface of which slants off laterally from a median ridge, and above this knife rises in a backward incline a <-shaped cutting or dividing prow, *c*, which prow continues back for some distance until it reaches a considerable width beyond the vertical planes of the sides of the truck and knife *b* to form what, for want of a better name, I call "scrapers" *d d*, which are at the rear curved or inclined inward toward the body of the machine. Back of these scrapers the vertical sides *e e* of the machine are parallel, and so continue toward the rear end thereof, where they are provided with other scrapers, *f f*, shaped substantially as shown in Fig. 2 and projecting laterally to the same extent as the other scrapers. The upright lines of the scrapers *d* are substantially parallel with the edge of the prow *c*, while in the scrapers *f* they are vertical. The lower edges of these scrapers are designed to be on or about a level with or just below the sills of the car-windows, and in passing through the snow one of their functions is to remove the top of the snow some distance laterally from the car-windows. From the knife-edge extends rearwardly and at a rising incline, with a level or slant outward, two snow-elevating conduit-floors, *g*, the said conduits having inside vertical walls and horizontal ceilings and opening outward their full lengths. The entrance to each of these conduits is provided with a ceiling-knife, *h*, parallel to the knife *b*, and with a vertical knife, *i*, the bevel of the edge of which is outside. The inner vertical walls of the conduits begin an outward curve about the rear of the scrapers *d*, and such curves merge into the front ends of the rear scrapers, *f*. The fore ends of the conduits are surmounted by beveled or slanted floor false conduits *j*, merging in the front scrapers.

The whole of the apparatus excepting the truck is armored in steel or iron plate, kept well greased, and the armor or sheathing of the floors *g* of the conduits overhangs the sides of the truck, as shown in Fig. 4 at *g'*. The scrapers *d* overhang the conduits, as indicated at Fig. 4, to keep the mass of snow in shape

as it is forced up and out of the conduits. A knife may be set in the edge of the prow *c*, extending out in advance of it some distance; and so, also, vertical knives may be arranged  
 5 at intervals along the knife *b*, to divide or chop up the snow. In operation, the knife *b* enters the snow about on a level with the top of the rails, and the prow *c* cleaves the snow vertically, and, being wedge shape, presses it out  
 10 laterally, when it is cut by the knives *h* and *i*, and being forced up into the conduits is by them elevated and thrown off laterally and pushed aside by the scrapers *f*. The inclined floors *g* tend to keep the snow from packing against  
 15 the vertical walls and ceilings of the conduits, and the projections *g'* of these floors give, in connection with the width of cut made by the knives *i*, a clearance for the plow through the snow and the masses of snow it is moving.  
 20 The shape of the scrapers permits the plow to be run back into the cut made in the snow without undoing the work done in advancing. If the snow—as in drifts—rises above the ceiling of the conduits, the false conduits *j* will ele-  
 25 vate and dispose of it. The lines of scrapers *d* are parallel with the prow, so as to offer the least resistance to the mass of snow, and to have these scrapers plumb with the prow, while those of the scrapers *f* are vertical, so as to  
 30 obtain the greatest possible resistance and efficiency in moving off the snow laterally. The parallel sides *e* give spaces at the sides of the plow for the lateral movement of the snow and its exit from the conduits. The knives *i*  
 35 are offset from the vertical sides of the machine sufficient to make a clearance for the overhanging floors *g* to avoid frictional contact with the wall of snow. It will thus be seen that I cut a way through and remove the snow  
 40 in compact mass without scattering it to the wind, and without liability of its falling back into the cut made.

What I claim is—

1. A snow-plow rigid throughout its active  
 45 parts and comprising a horizontal knife, a snow-dividing prow, and lateral conduits for conveying the snow in mass from below up and outward laterally from the machine, and

upright scrapers arranged fore and aft of the discharge-openings of said conduits, substan- 50  
 tially as described.

2. A snow-plow comprising the dividing-prow and knife, lateral conduits, the entrances to which are armed with knives and extending rearwardly and curved outward, and scrapers, 55  
 substantially as described.

3. A snow-plow comprising the upwardly-inclined conduits having vertical inner walls, horizontal ceilings, and floors slanting laterally downward, combined with scrapers projecting 60  
 laterally beyond said conduits, a snow-dividing prow, and knives, substantially as described.

4. The combination of the cutting-knives, vertical and horizontal, the snow-dividing 65  
 prow, the snow-elevating conduits and scrapers, and the false conduits superposed upon such conduits and provided with outwardly and downwardly slanting floors, substantially as described.

5. The combination, with the upwardly and rearwardly inclined conduits, and means for dividing the snow into them, of the laterally- 70  
 projecting scrapers *d d* and *f f*, for removing the top surface of the snow beyond the cut made below, substantially as described.

6. The combination, with the upwardly and rearwardly inclined conduits, and means for dividing the snow into them, of the overhang- 80  
 ing and laterally-projecting scrapers for removing the top surface of the snow beyond the cut made below and providing for backing, substantially as described.

7. The knives *i*, extending laterally beyond the conduits, and the sheathing *g'* overhang- 85  
 ing the sides of the plow to give clearance for the plow in progressing through the snow, combined with the prow, and the conduits open laterally throughout their lengths, substantially as and for the purpose described. 90

In testimony whereof I have hereunto set my hand this 2d day of June, A. D. 1885.

EDWIN PAYNE.

Witnesses:

WM. H. FINCKEL,  
 E. A. FINCKEL.