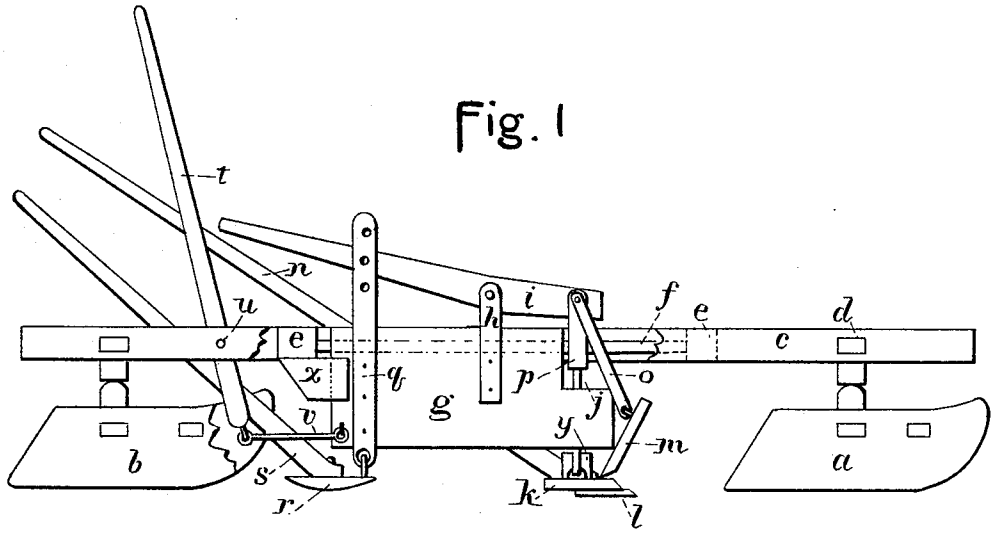
(No Model.) 2 Sheets—Sheet 1.

J. L. HOLDEN.

ROAD PLANER AND LEVELER.

No. 386,823. Patented July 31, 1888.

Fig. 1



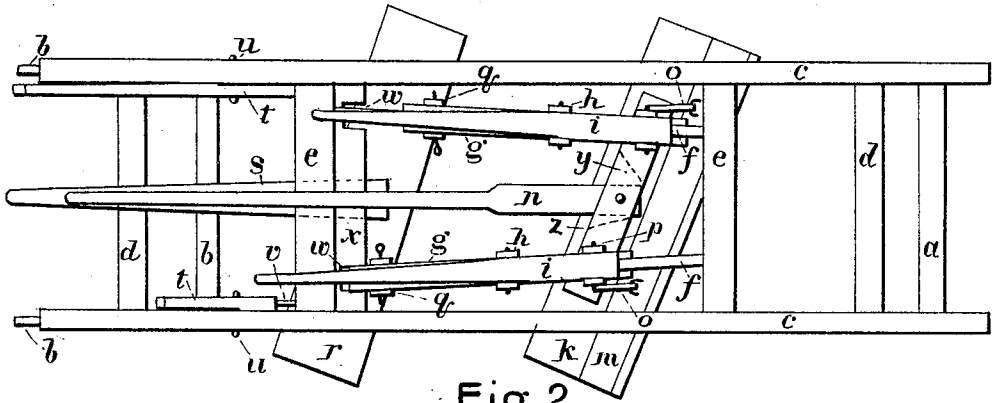


Fig. 2

WITNESSES

E. W. Robinson

W. P. Hall

INVENTOR

James L. Holden,

per atty,

Elgin B. Verrill.

(No Model.) 2 Sheets—Sheet 2.

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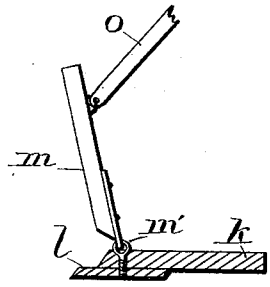

Fig. 3.

WITNESSES

Edward N. Robinson

Norris G. Curtis

INVENTOR

James L. Holden

per atty.

Elgin C. Merrill.

UNITED STATES PATENT OFFICE.

JAMES L. HOLDEN, OF OXFORD, MAINE.

ROAD PLANER AND LEVELER.

SPECIFICATION forming part of Letters Patent No. 386,823, dated July 31, 1888.

Application filed April 18, 1888. Serial No. 271,091. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. HOLDEN, of Oxford, in the county of Oxford and State of Maine, have invented certain new and useful Improvements in Road Planers and Levelers; 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 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.

My invention relates to improvements in machines for planing, leveling, and breaking out roads in winter. It consists of a frame mounted on sleds in the usual way, a planer and leveler attached to said frame and operated as hereinafter fully set forth, and mechanism for adjusting the planer and leveler for use where the road is sloping or the road lies in uneven drifts.

Reference being had to the accompanying drawings for illustration, in which like letters show like parts, Figure 1 is a side elevation with parts broken out; Fig. 2, a top plan. Fig. 3 is a detail showing pivotal connection of leveler to planer.

Upon two sleds, *a* and *b*, I mount a frame having side bars, *c*, and cross bars *d*, and middle cross-bars, *e*. Set in the bars *e* are the rods *f*, said rods slightly approaching each other as they extend forward. Attached to and sliding backward and forward on these rods are the slides or supporting-blocks *g*. Above the blocks *g*, and mounted on the standards *h*, are levers *i*. On the end of the levers *i* are rods *j*, pivotally attached thereto, which extend downward through the blocks *g*, and on the lower ends of these are hung on hinge or staple joints the planing-plate *k*. The planer-knife may be integral with this plate *k*, or it may be attached to the under side of the plate, as seen at *l* in Fig. 1. The rods *j* move freely up and down in the block *g*, according as the levers *i* are raised or lowered. On the upper side of the planer-plate, and pivoted thereto, is a leveler, *m*, and a lever, *n*, pivoted so as to admit of a lateral movement by which the edge of the plane can be raised or lowered. A rod or plate, *o*, extends from the leveler to the standard *p*, the rod *o* and the leveler acting as a toggle-joint. When the lever *n* is pressed down, the leveler is forced forward and downward, and vice versa.

The operation of this part of my machine is as follows: When the machine reaches a hollow or pitch hole in the road, the lever *n* is pressed down, the edge of the plane is raised, and the leveler thrown forward, thus forcing the snow in front of it down into the hole. When the hole is passed, the lever is raised and the plane again begins its work.

Near the rear of the sliding blocks, and attached thereto or to the uprights *q*, is a smoother, *r*, pivoted on its forward edge, as seen in Fig. 1, and operated by lever *s*, pivotally attached thereto, so as to admit of a lateral movement. This is to smooth off and press down the snow in the holes.

To the inner sides of the side bars are the levers *t*, turning on the rod or pins *u*. The lower ends of the levers *t* are connected with the sliding blocks by links *v*. Thus, when the lever *t* is drawn back, the block is driven forward, carrying with it the planer, leveler, and smoother. When only one side is moved forward, these parts take a diagonal position with reference to the frame, as seen in Fig. 2.

w are recesses into which the rear ends of the blocks fit, so as to prevent a lateral swinging motion to the under sides of the blocks.

The operation of this part of my device is as follows: When the road is higher on one side than on the other, the block on that side is forced forward, and the snow is thus forced from the higher to the lower side. This effect is much increased by lowering the plane on the upper side and raising it on the lower side.

This machine can be mounted on wheels and used to good advantage in building and repairing roads where the soil is reasonably free from stones and roots.

Having thus described my invention and its use, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a machine for repairing roads, the combination, with suitable sleds and frame mounted thereon, of adjustable sliding blocks *g*, supported on rods set in said frame, levers *t*, attached to the sides of said frame, and connecting-links *v*, all substantially as and for the purposes hereinbefore set forth.

2. In a road-machine, the combination, with

adjustable sliding blocks, as set forth, of a plane or knife pivoted beneath said block and lever attached to the upper side thereof, whereby the edge of the plane can be depressed or raised, substantially as hereinbefore set forth.

3. In a road-machine, the combination, with adjustable sliding blocks, as set forth, of a plane or knife pivoted beneath said blocks, a lever attached to the upper face thereof, a leveler pivoted near the edge and on top of the plane, and a link connecting said leveler to the block or a standard on the block, all substantially as and for the purposes hereinbefore set forth.

4. In a road-machine, the combination, with adjustable sliding blocks, as set forth, of a lever attached to the top of the block, a rod connected to the end of the lever and passing down through the block, and a plane pivoted to the lower end of the rod, all substantially as and for the purposes hereinbefore set forth.

5. In a road-machine, the combination, with the adjustable sliding blocks *g*, arranged and operated as set forth, of a smoother, *r*, pivoted to the bottom of said block, all substantially as and for the purposes set forth.

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

JAMES L. HOLDEN.

Witnesses:

EDWARD W. ROBINSON,

ELGIN C. VERRILL.