(No Model.)

J. C. PATE.

GRADING MACHINE.

No. 435,767. Patented Sept. 2, 1890.

Fig. 1.

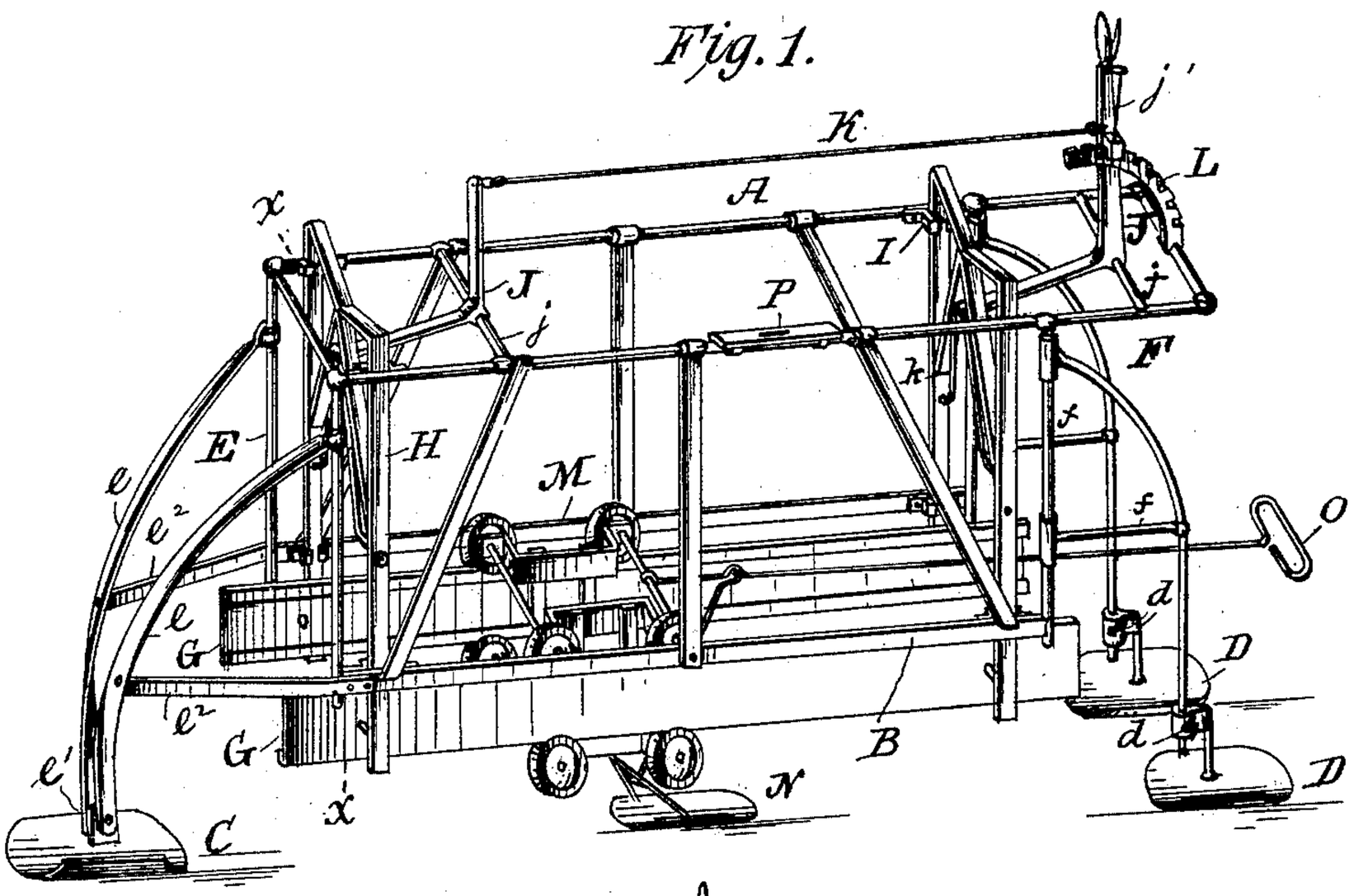
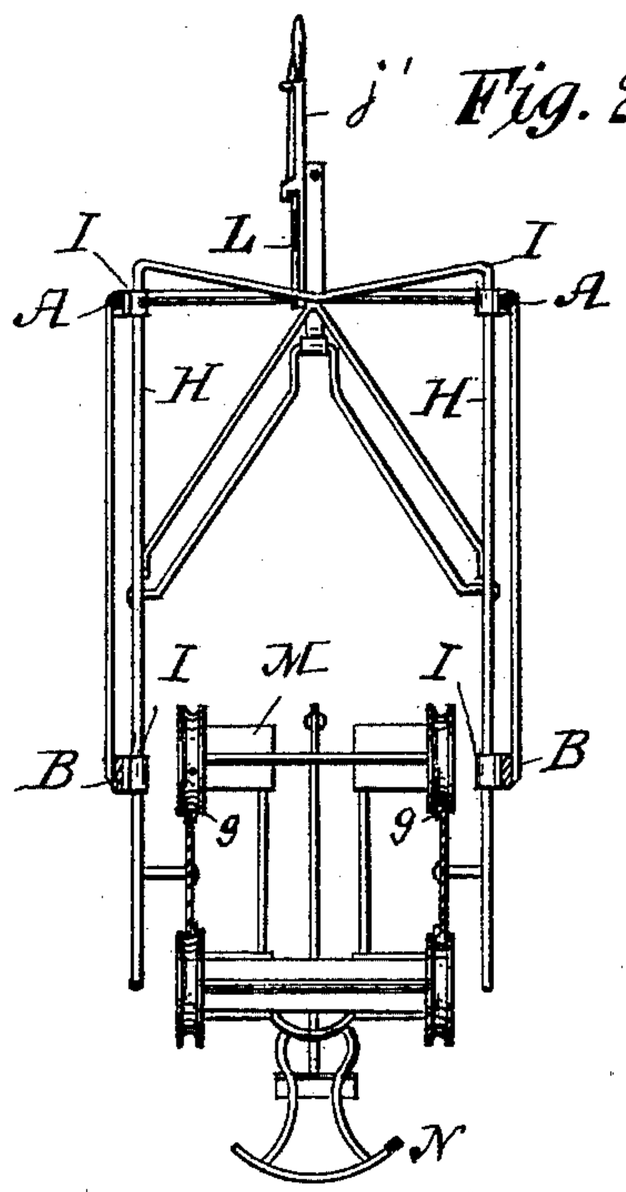


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN CRITTENDON PATE, OF BOONVILLE, INDIANA.

GRADING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 435,767, dated September 2, 1890.

Application filed June 6, 1890. Serial No. 354,436. (No model.)

To all whom it may concern:

Be it known that I, JOHN CRITTENDON PATE, a citizen of the United States, residing at Boonville, in the county of Warrick and State of Indiana, have invented certain new and useful Improvements in Grading-Machines; 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.

This invention relates to a tile-ditch-grading machine, and has for its object to provide a machine which will perform its work in a rapid and efficient manner, and which will at all times be under the control of the operator, so as to be readily adjusted to the condition of the ground, whereby the ditch may be leveled.

The improvement consists in the novel feature and peculiar construction and combination of the parts, and which will be hereinafter more fully described and claimed, and which are shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a cross-section about on the line *x x* of Fig. 1, looking to the right.

The frame of the machine is composed of the top and bottom side bars A and B, intermediate brace-bars between the top and bottom side bars, and suitable cross-bar between the top bars. This frame is supported on shoes or runners C and D, which are secured to the lower ends of the standards E and F. The standard E is composed of two members *e e*, which are secured at their upper ends to the frame, being brought together at their lower ends and pivotally connected with the shoe C by the pin *e'*. These members are braced by the bars e^2, which are secured to the bottom side bars B and project rearwardly therefrom, and are secured to the said members *e e*. The standards F curve and are secured to the frame at their upper ends in such a manner that they may be swung in or out to adapt the shoes to the width of the ditch. These standards are strengthened by the braces *f*, which are firmly secured to the standards at their outer ends, and which have their inner ends loosely connected with the frame. The shoes D are adjustable on the standards F, being held at the required position by the set-screws *d*, which pass through the socket or shank of the shoes and obtain a bearing against the sides of the standards.

The track or guide G, vertically adjustable with reference to the frame, is guided in its vertical movements by the inverted-U-shaped standards H, which are secured at their lower ends to the rails *g g*, which comprise the track or guide G. These inverted-U-shaped standards pass through keepers I on the top and bottom side bars, and are held in place and guided in their movements thereby. These standards H are suitably braced at their upper or closed ends, as shown, and will be provided in sufficient numbers, according to the size of the machine, two being shown—one located near each end of the machine. The bell-crank levers J are journaled on the cross-bars *j* of the frame and have their vertical members connected together by the rod K, and have their horizontal members connected with the inverted standards H by the bails *k*. Either of these levers J may have vertical members extended to form a convenient means for operating it for effecting a raising or lowering for the guide or track G. The extended end or handle *j'* is provided with a hand-clutch of ordinary construction, to engage with a notched segment L to hold the track or guide G at the required elevation.

The carrier M, mounted on the track or guide, is of desired construction and is provided with an upper and a lower set of grooved pulleys, between which the rails *g g* are arranged. The scraper N is secured to the carrier. The rod O, fastened to the carrier, is adapted to be operated by hand to move the said carrier back and forth on the track when leveling the ditch.

The spirit-level P on the frame enables the operator to level the machine or obtain the proper slope.

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

1. A machine for leveling tile-ditches, composed of a frame, a track or guide, means for vertically adjusting the track or guide, and the carrier provided with the scraper mounted

on the said track or guide, substantially as set forth.

2. In a tile-ditch leveler, the combination, with a frame, of a vertically-adjustable guide or track, a carrier mounted on the said track or guide, a scraper secured to the carrier, and means for moving the scraper on the guide or track, substantially as described.

3. In a tile-ditch leveler, the combination, with the frame and the track or guide, of the standards working in guides on the frame, and the connected bell-crank levers for moving the said track vertically, substantially as set forth.

4. The combination, with the frame, of the fixed standard E, having shoe C, and the swinging standards F, having shoes D, substantially as set forth.

5. The combination, with the frame, of the fixed standards E, having shoes C, and the standards F, having the adjustable shoes D, substantially as described.

6. In a tile-ditch-leveling machine, the combination, with the vertically-adjustable track or guide, of a carrier having an upper and lower set of pulleys, substantially as set forth.

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

JOHN CRITTENDON PATE.

Witnesses:

WM. E. JONES,

CORN KELLEY.