

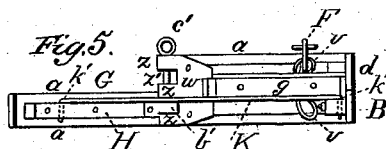
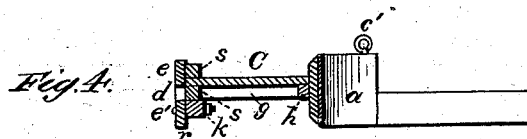
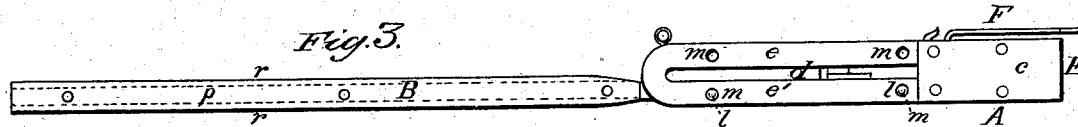
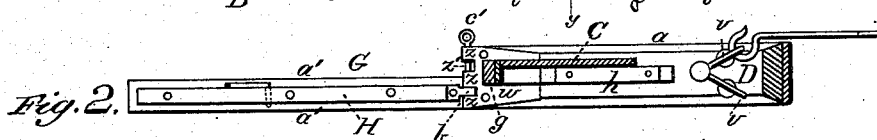
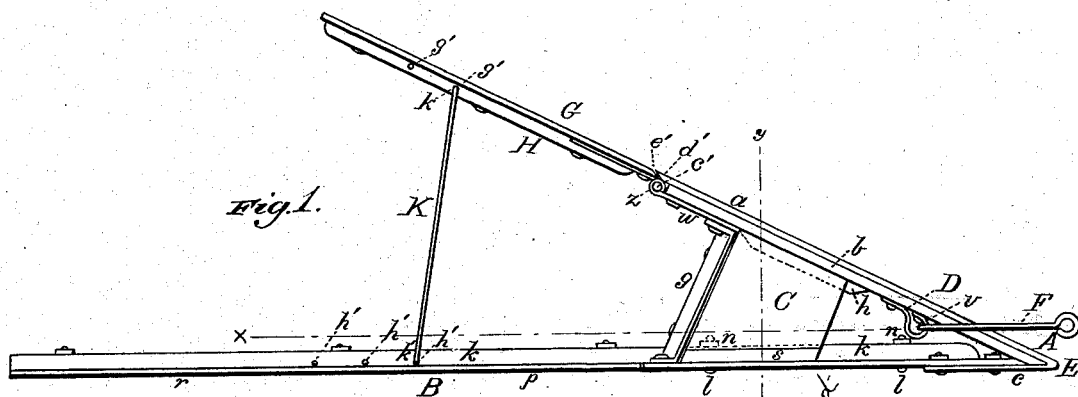
(No Model.)

2 Sheets—Sheet 1.

S. P. EVANS.  
GRADING MACHINE.

No. 261,693.

Patented July 25, 1882.



WITNESSES  
Emory H. Bates  
Philip L. Masi

INVENTOR  
Silvanus P. Evans  
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his ATTORNEYS

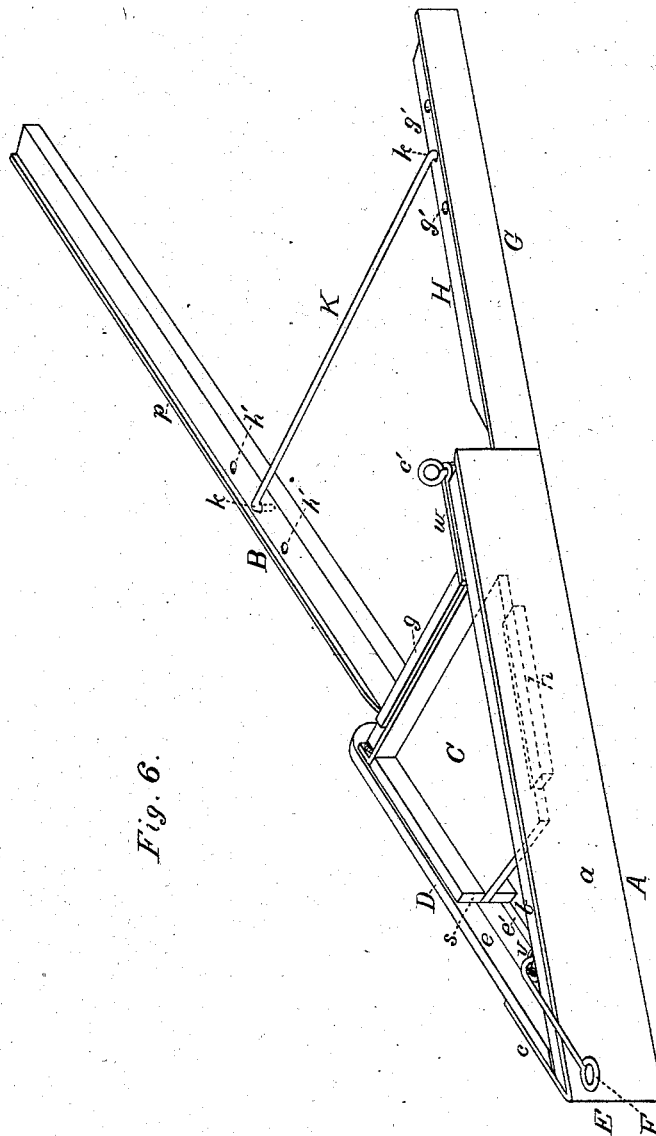
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2 Sheets—Sheet 2.

S. P. EVANS.  
GRADING MACHINE.

No. 261,693.

Patented July 25, 1882.



WITNESSES

*Villette Anderson.*  
*Philip Lemasi.*

INVENTOR

*Silvanus P. Evans,*  
*by Anderson Smith,*  
*his* ATTORNEYS

# UNITED STATES PATENT OFFICE.

SILVANUS P. EVANS, OF GEORGETOWN, OHIO.

## GRADING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 261,693, dated July 25, 1882.

Application filed April 26, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, SILVANUS P. EVANS, a citizen of the United States, and a resident of Georgetown, in the county of Brown and State of Ohio, have invented a new and valuable Improvement in Grading-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a plan view of the grading-machine. Fig. 2 is a longitudinal section through the line *x*, Fig. 1. Fig. 3 is a side view. Fig. 4 is a cross-section through the line *y y*, Fig. 1. Fig. 5 is a rear view, and Fig. 6 is a perspective view.

This invention has relation to machines for grading roads and similar purposes; and it consists in the construction and novel arrangement, in connection with the angular plow-iron, of the bent or loop-form landside; the central transverse brace, and the reversible landside-extension adjustable to either branch of the bent or loop-form landside; the central cleat of the oblique wing of the grader, and the reversible platform; the hinged reversible and adjustable extension of the oblique wing, and the adjustable transverse brace whereby it is connected to the landside-extension; the double-loop hitch secured to the body of the oblique wing, and the draft-link connected thereto and extending across the top thereof, all as hereinafter set forth.

In the accompanying drawings, the letter A designates the plow-iron, which is of angular form, having its upper and lower edges parallel. The long oblique branch or wing *a* of the plow-iron is provided with a wooden lining, brace, or body-board, *b*, which is firmly riveted or bolted thereto. The short branch *c* of the plow-iron extends directly to the rear, and to it is bolted or riveted the bent or loop-form landside-iron *d*, whereof the bowed end is in rear, and the outer edges of the upper and lower branches, *e* and *e'*, are level with the upper and lower edges of the plow-iron. A transverse wood-lined brace-bar, *g*, extends

from the middle of the bowed end of the landside-iron to the central portion of the rear end of the oblique wing of the grader, and a centrally-arranged cleat or rib-support, *h*, extends horizontally along the inner side of the oblique wing, to which it is firmly secured.

B represents the landside-extension or guide-bar. This consists of a long wooden bar, *k*, which is secured to the lower branch of the loop-form landside iron *d* by means of bolts *l*, passing through perforations *m* thereof, and nuts *n*. That portion of the bar *k* which is in rear of the landside-iron is provided on its outer side with the long face-plate *p*, the upper and lower edges, *r*, of which project above and below the upper and lower surfaces, respectively, of the wooden bar *k*, in the form of flanges, designed to cut their way into the soil, and thereby maintain the direct movement of the landside in a steady and uniform manner. The upper bar or branch, *e*, of the landside-iron is also provided with bolt-holes *m*, in order that the landside-extension B may be secured thereto when the grader is reversed to throw the earth to the right. In reversing the grader it is turned over and the landside-extension is bolted to the lower branch of the landside-iron.

C indicates the driver's platform, a trapezoidal board having above and below one of its oblique edges the marginal cleats *s*, whereof the lower one is designed to rest on the wooden body-bar *k* of the landside-extension, while the opposite edge of the platform rests on the central cleat or rib-support, *h*, of the wing. The platform is therefore removable and reversible.

D represents the double-loop hitch, which is secured by three rivets or bolts to the front portion of the wing, somewhat back of the angle end E of the plow-iron. The upper and lower loops, *v*, of the hitch are arranged in similar positions relative to the upper and lower edges of the wing, being directed toward the same obliquely and stopping a little short thereof, as indicated in the drawings. A long draft-link, F, is designed to engage the upper loop *v*, and to extend across the top of the wing, somewhat off from the landside line, so that it will be nearer the center of resistance of the grader, and will tend, under the action

of the draft, to keep the landside in proper position. The position of the draft-link over the edge of the wing also tends to keep the angle end E of the plow-iron down to its work in the soil.

The rear end of the wing of the grader is provided with a hinge-plate, *w*, having vertically arranged at its rear portion the barrel-eyes *z* and between the same spaces *z'*. G is an extension of the wing, having a wooden body-bar, H, on its inner surface, above and below which it projects in flange form, as indicated at *a'*.

The front end of the extension is provided with a hinge eye or connection, *b'*, which is designed to fit in one or more of the spaces *z'* of the hinge-plate *w*, and to be connected to the latter by the vertical pivot-bolt *c'*. The position of the parts forming the hinge-joint is such that when the connection is made the forward end of the extension-plate G will be in opposition to the rear end of the wing-plate *a*, the latter being beveled from the inside, as at *d'*, to cover the forward and outside beveled end, *e*, of the extension, as shown in the drawings.

Along the middle portion of the body-bar of the extension G a series of perforations, *g'*, is made, and opposite thereto in the body-bar of the landside-extension is provided a similar series of perforations, *h'*. K is an adjustable transverse brace having bent ends or catches *k'*, designed by engagement with a perforation, *g'*, and a perforation, *h'*, to connect the wing-extension G to the landside-extension, so that the former will be held firmly in position. The wing-extension is adjustable and may be placed in line with the wing itself; or it may be held at either of several angles thereto, according to the lateral spread of earth required in the work. The wing-extension is reversible, being readily brought into position, so that its lower or working edge shall be in line with the lower or working edge of the wing. In this construction it is designed to secure lightness without sacrificing strength or efficiency, and therefore the vertical breadth of the landside-extension B and the wing-extension G is made much less than that of the front angular por-

tion or body of the grader comprising the plow-iron and wing and the landside-iron.

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

1. In a grading-machine, the combination, with the reversible front angular portion or body, of the landside-extension, of less vertical breadth than the angular body portion, and reversible, by adjustment, to either branch of the landside thereof, substantially as specified.

2. A reversible grading-machine having a landside-extension of less vertical breadth than the angular front or body portion, and a removable and reversible driver's platform, substantially as specified.

3. In a grading-machine, the angular plow-iron having the wing *a* and short branch *c* and the bent or loop-form landside-iron *d*, secured thereto, substantially as specified.

4. A grading-machine having the angular plow-iron, loop-form landside-iron *d*, removable and reversible landside-extension B, central transverse brace, *g*, central supporting-rib, *h*, and reversible driver's platform C, substantially as specified.

5. In a grading-machine having the landside-iron *d*, landside-extension B, and oblique grading-wing G, the double-loop hitch D, secured to said wing in rear of the angular end of the grader and off from the landside, and the draft-link F, connected to the upper loop of the hitch and extending over the top of the wing, substantially as specified.

6. A road-grading machine having an oblique grading-wing, and hinged thereto the reversible and angularly-adjustable wing-extension G, and the adjustable brace K, connecting said wing-extension to the extension of the landside, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SILVANUS P. EVANS.

Witnesses:

PHILIP C. MASI,  
JAMES J. SHEEHY.