

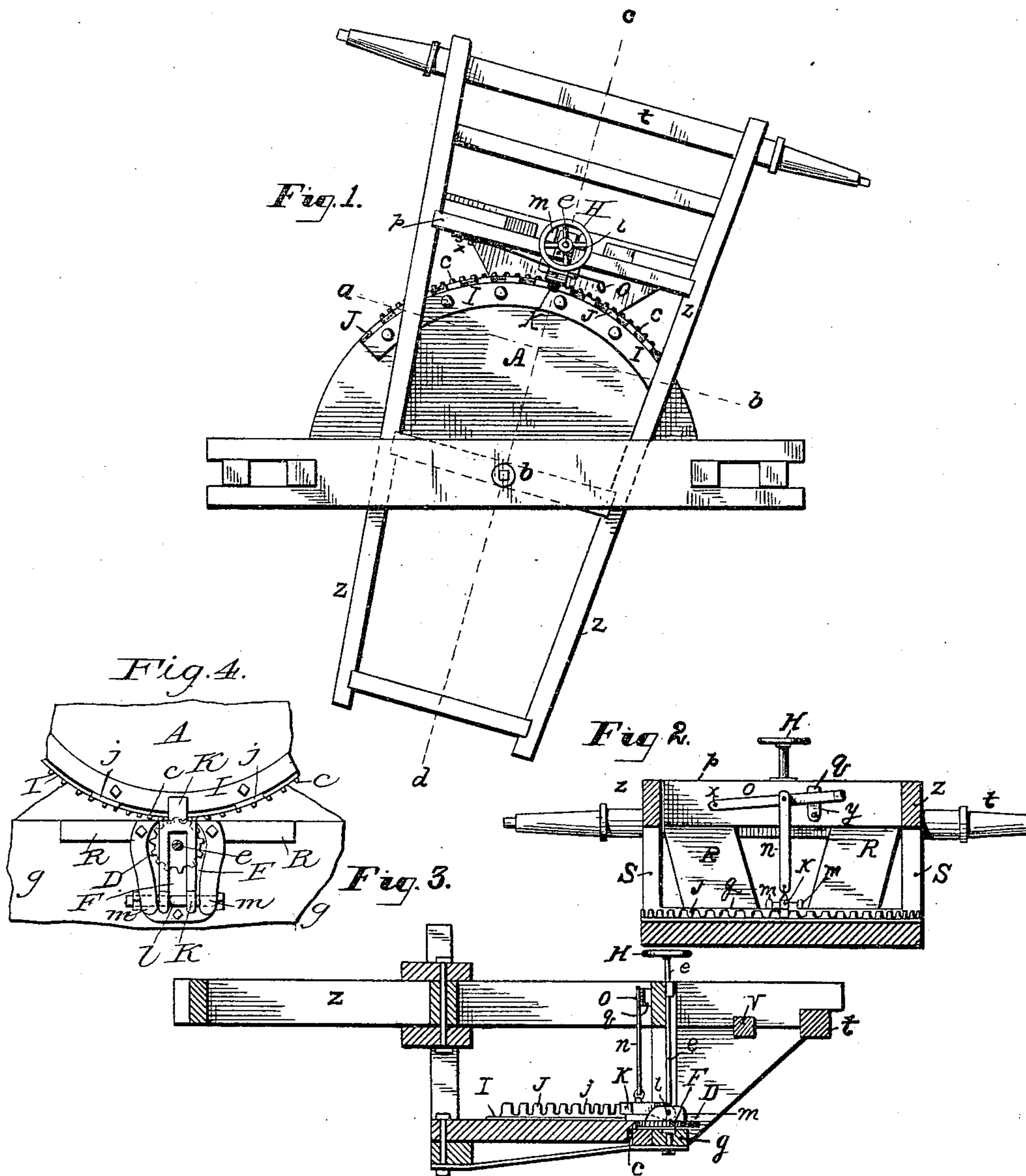
(No Model.)

S. PENNOCK.

ROAD GRADER.

No. 344,197.

Patented June 22, 1886.



WITNESSES:

John Nolan.
J. H. Hulme

INVENTOR

Samuel Pennock,
per Joshua Pusey, atty

UNITED STATES PATENT OFFICE.

SAMUEL PENNOCK, OF KENNETT SQUARE, PENNSYLVANIA, ASSIGNOR TO
THE AMERICAN ROAD MACHINE COMPANY, OF SAME PLACE.

ROAD-GRADER.

SPECIFICATION forming part of Letters Patent No. 344,197, dated June 22, 1886.

Application filed January 6, 1885. Serial No. 152,128. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL PENNOCK, a citizen of the United States, residing at the borough of Kennett Square, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Road-Graders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 This invention relates to that class of road-graders sometimes known as "reversible," in which the scraper-bar is rotatable within certain limits, so as to alter the angle of the same with relation to the path in which it is drawn, 15 or to change the machine from a right-hand to a left-hand working, and the converse. It is more especially an improvement upon the road-scraper described in the Letters Patent No. 296,138, of Marcus E. Cook, dated April 20 1, 1884, to which reference may be had.

The invention consists in improved devices for retaining in the various positions to which it may be rotated the pivoted toothed segment or table which carries the scraper-bar 25 shown in said patent.

It consists, also, in the manner of bracing the bearing of the vertical shaft which carries the pinion that gears with said toothed segment against the back and lateral strain or 30 twist.

These improvements will be fully described hereinafter, and pointed out in the claims, reference being had to the annexed drawings, of which—

35 Figure 1 is a plan view of part of a reversible grader in which my invention is embodied, the wheels, the scraper-bar, with devices for raising and lowering the same, and other parts not essential to the understanding of the present improvements being omitted. 40 Fig. 2 is a vertical section on the line *a b*, Fig. 1. Fig. 3 is a like section on the line *c d*, Fig. 1. Fig. 4 is a partial plan detail of the mechanism for turning and locking the toothed 45 segment hereinafter mentioned in position.

A is the toothed segment, pivoted at *b* to the frame of the machine, which segment carries in the front thereof the scraper-bar. (Not shown herein, but as shown in said patent of 50 Marcus E. Cook.) A portion of the edge of the segment is provided with a series of cogs

or teeth, *e*, with which engage the cogs of a pinion, D, Fig. 3, whose vertical shaft *e* has a bearing in a box, F, secured to the middle of a transverse sill, *g*, hereinafter referred to, 55 and its upper end is provided with a hand-wheel, H, for rotating the pinion, in convenient position for the operator, who stands upon the segment-platform. By turning wheel H it is obvious that segment A may be 60 rotated in either direction, as required. In order to lock the same in the various positions, I secure to the top of the segment, near the edge, a segmental plate, I, with a vertical flange having a series of indentations, *j*, 65 therein. With these indentations is adapted to engage the end of a dog, K, that is pivoted on a pin, *l*, passing through lugs *m* on the top of the box-plate F. The lower end of a vertical rod, *n*, is attached to said dog, and to 70 its upper end is pivoted a laterally-elastic bar, O, one end of which is pivoted at *x* to the side of a cross-bar, *p*, constituting a part of the general frame-work of the machine. The free end of spring-bar O forms a handle 75 whereby the operator may raise and lower the same.

q is a lug, fastened to the side of cross-bar *p*, having an offset, *y*, which serves to sustain 80 bar O when elevated.

The operation of the parts described is as follows: When the segment is to be turned to a particular position, the operator first takes hold of the free end of the bar O, and raising the same thereby lifts the dog until its end is 85 brought above the top of the indented segment-plate I, which permits table A to be rotated to the desired position, whereupon the dog is let down and engages with the opposite one of the indentations *j*, thus firmly locking 90 the segment-table. Although preferred, it is not essential that the bar or lever O should be a spring, the only object in making the same laterally elastic being so that by its tendency to always spring toward the side of the 95 lug *q* it will be retained in place, both when the lever is raised and lowered, and yet may be readily moved out laterally free from the offset when required. As the strain upon the box F, in which the pinion-shaft *e* has its 100 bearings, is obviously very great when the machine is doing work, it is desirable that

said box and the cross-bar to which it is secured shall be strongly braced. I accomplish this by the following system of bracing: Two brace-bars, R, Figs. 2 and 3, forming together a truncated V, whose lower ends abut against the respective sides of the box F, are rabbetted with and firmly bolted or otherwise secured to the upper cross-bar, *p*, on which the bearing of the upper part of the shaft *e* is secured, and the lower ends of said braces are also bolted or nailed fast to the lower cross-bar, *g*. In this way the lateral and twisting strain against box F is taken. In order to resist the back-strain, I run on the wide side of each of the two side pieces, *z*, of the frame of the machine braces S, whose rear ends abut against the front side of the axle *t*, and whose forward ends are cut away to form an offset, *u*, Fig. 3, so that they will abut against the lower or sill-piece, *g*, the latter and said braces being firmly fastened together. As the side pieces, *z*, are themselves firmly bolted to the axle, it will be seen that a strong resistance against the back-strain is secured by means of the braces S. I sometimes use also in connection with these braces a cross-bar, V, let into the same, as seen in Fig. 3, which cross-bar is fastened to the side bars, *z*. In such case it is not essential, although preferable, to have the said brace abut against the axle as well.

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

35 1. The combination of the rotatable segment, the plate I, secured thereto, and having the indentations *j*, and the pivoted vertically-movable dog adapted to engage directly with said indentations, substantially as described.

40 2. In a road-grader of the recited class, the combination of the toothed-segment table, the pinion and means for rotating the same, and the indented plate I, together with the vertically-

movable dog adapted to engage with the indentations of said plate, substantially as and 45 for the purpose stated.

3. The combination of the toothed-segment table, the rotatable pinion adapted to engage therewith, the box or bearing-plate F, having vertical flanges *m*, the dog pivoted thereto between said flanges, and the indented segment-plate I, with whose indentations said dog is adapted to engage, together with the pivoted lever O and connecting-rod *n*, all constructed and operating substantially as and for the 55 purpose stated.

4. The combination of the rotatable segment, the indented plate I, secured thereto, and the pivoted dog adapted to engage with the indentations of said plate, together with the 60 laterally-elastic hand-lever, the connecting-rod *n*, and the catch-lug *q*, substantially as and for the purpose specified.

5. In a road-grader of the class recited, the combination of the toothed segment, the in- 65 dented plate I, the box or bearing F, attached to sill *g*, the dog pivoted to said box and adapted to engage with the indentations of plate I, and the upper cross-bar, *p*, together with the side braces, R, with their lower ends 70 abutting against the sides, respectively, of said box, substantially as and for the purpose stated.

6. The combination of the toothed-segment table, the pinion engaging therewith, the box 75 or bearing F, the sill *g*, cross-bar *p*, the braces R, and the lateral braces S, substantially as and for the purpose recited.

In testimony whereof I have hereunto affixed my signature this 4th day of December, 8c A. D. 1884.

SAMUEL PENNOCK.

Witnesses:

THOMAS T. WORRALL,
JAS. M. MCCONKEY.