(No Model.) 2 Sheets—Sheet 1.

J. MOORE.

ROAD GRADING MACHINE.

No. 345,315. Patented July 13, 1886.

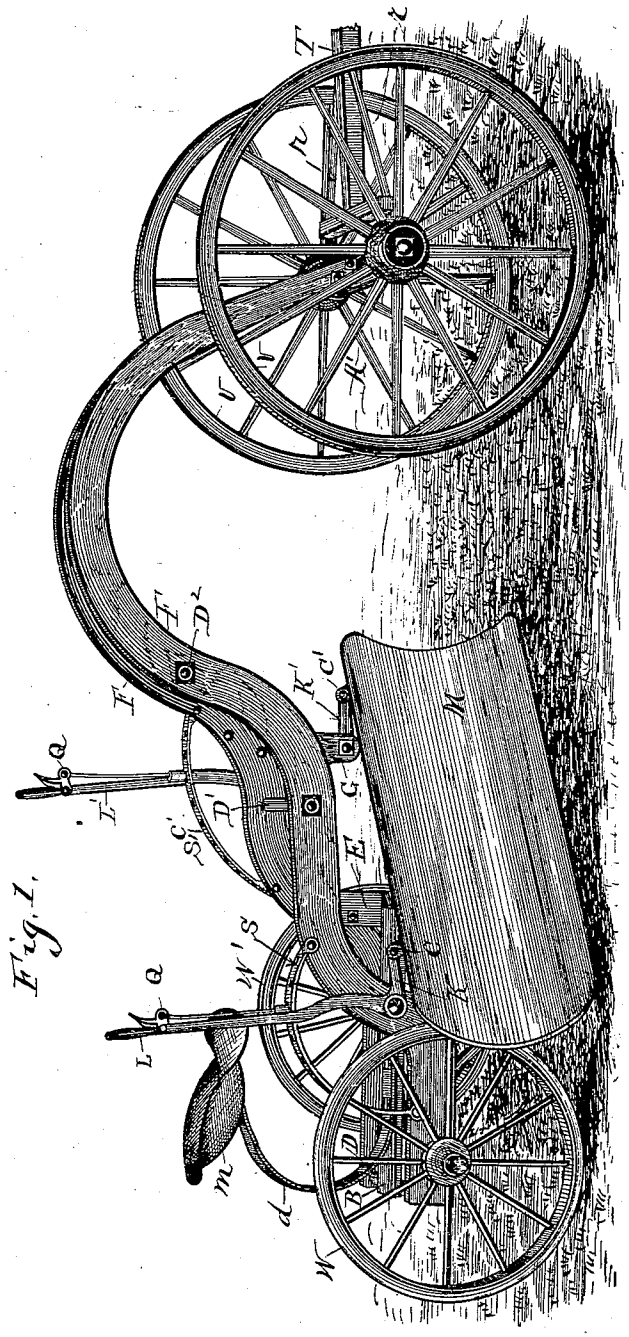


Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

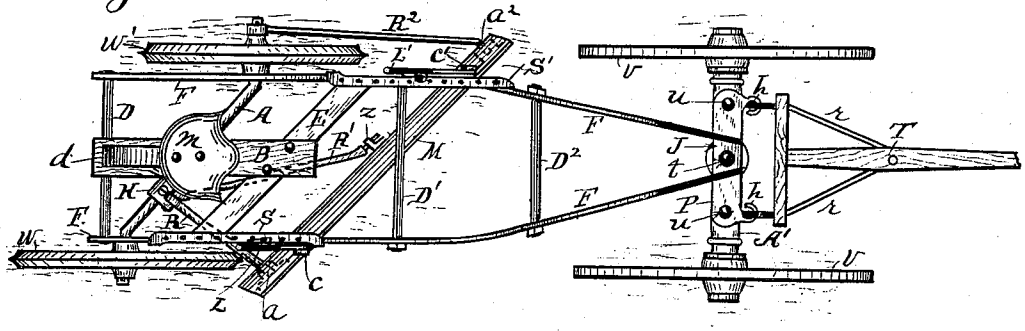


Fig. 4.

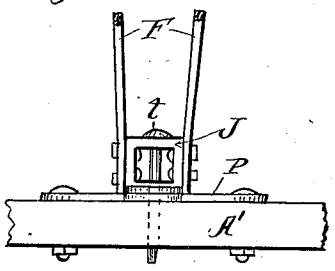


Fig. 3.

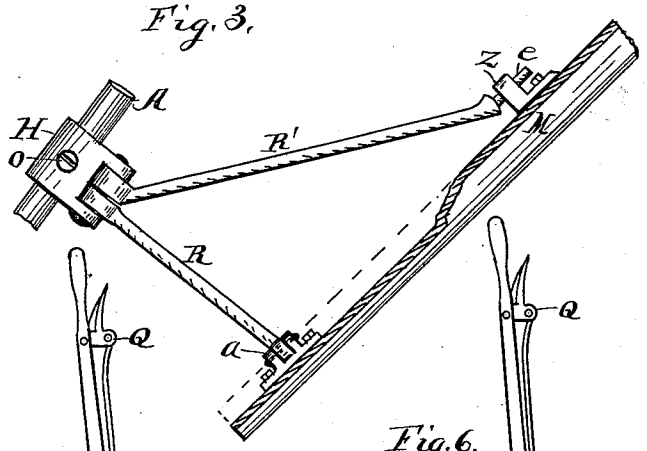


Fig. 6.

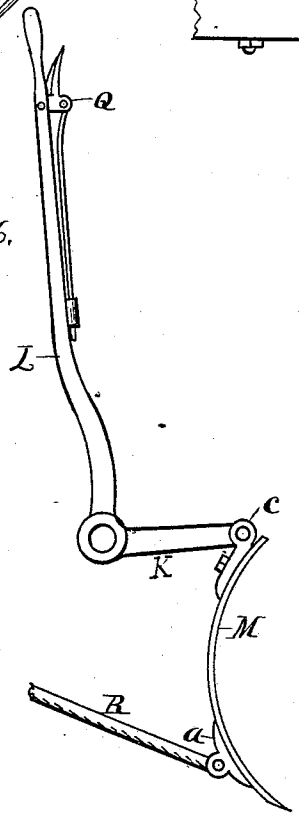
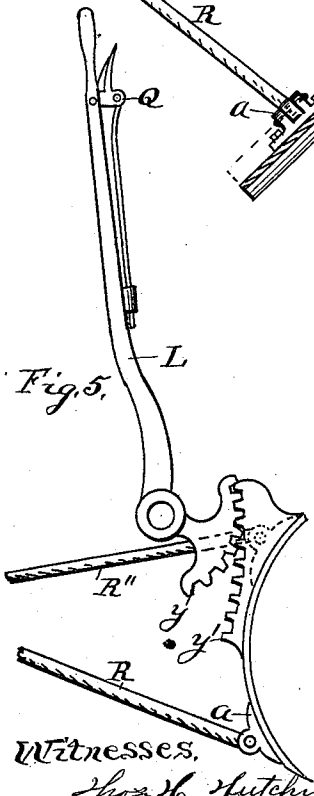


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSHUA MOORE, OF MARSEILLES, ILLINOIS.

ROAD-GRADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 345,315, dated July 13, 1886.

Application filed December 21, 1885. Serial No. 186,375. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA MOORE, a citizen of the United States of America, residing at Marseilles, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Road-Grading-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in road-graders; and it consists in the general arrangement and construction of its parts, whereby the machine is simple and effective and easily operated, which improvements are fully set forth and explained in the following specification and claims, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the grader. Fig. 2 is a plan view on top of the same. Fig. 3 is a plan view on the top of a section of the rear axle and of a section of the scraper-board, and also of the lower braces connecting said axle with the rear bottom part of the scraper-board. Fig. 4 is a rear view of the central part of the front axle, showing the manner of its attachment to the main frame. Fig. 5 is an end view of the scraper-board, showing the rear upper and lower braces attached thereto, and of segmental cogs on its rear side, arranged to mesh with corresponding segmental cogs on the lower end of a hand-lever, for elevating and lowering the scraper-board; and Fig. 6 is an end view of the scraper-board, showing a lower rear brace attached thereto, and its upper side pivoted to the outer end of the short arm of a bell-crank hand-lever, for elevating and lowering the scraper-board.

Referring to the drawings, the main frame of the machine consists of the two bars or beams F F′, one on either side of the grader, secured to the axle A at their rear ends, and securely held apart and braced by means of the cross bars or rods D, D′, D², and E, and converging at their front ends, so as to attach to the bolster-block J, arranged on the center of the front axle, A′, and pivotally secured by means of a king-bolt, *t*, as shown in Figs. 1, 2, and 4. The rear part of the said frame rests upon the diagonally-arranged rear axle, A, as stated, and shown in Fig. 2, and that portion of said frame between the front axle, A′, and the scraper-board M is arched upward, as shown in Fig. 1, for the purpose of permitting the wheels *v v* of said axle to turn under it so the machine can be turned about in a short space. The front axle is provided with the two traveling-wheels *v v* and the rear axle is provided with the traveling-wheels W W′, which have sharpened peripheries, so they may not slide sidewise on account of lateral pressure from the diagonally-arranged scraper-board M.

The axle A is arranged across the machine in a diagonal manner, as shown in Figs. 1 and 2, so as to be about parallel with the scraper-board, and so wheel W′ will not be too far in the rear thereof.

M is the scraper-board, arranged diagonally under the frame F, as shown in Figs. 1 and 2, and is secured to the machine through the medium of the lower rear braces, R R², which have their front ends pivotally attached to the lower rear part of the scraper board, respectively at A and A², and their rear ends pivotally secured to the axle A, brace R, through the medium of the adjustable box H, as shown in Fig. 3, and brace R², by means of a sleeve formed thereon and placed on the one extending end of said axle A, and the hand-levers L and L′, which are pivotally secured on at either side of the machine to frame F F′. These levers each have a short arm, as shown at K, Fig. 6, at their lower pivoted end, formed at right angle with their upright part. These short arms K are pivotally secured to the upper part of the scraper-board M, by means of the eye-lugs *c c′*, which are secured to said scraper-board, the upright part of levers L L′ having hand-latches Q, for operating a bolt for respectively engaging the perforated segments S S′. (Shown in Figs. 1 and 2.) These levers L L′ also furnish means for vertically adjusting the scraper-board independently from the frame of the machine, and for holding it adjusted or raised while the machine is being transported or turned, the operator having but the weight of the scraper-board to handle. This method of attaching the scraper-board to the machine permits vertical adjustment of the scraper-board and properly holds its cutting-edge to its work.

Brace R′ (shown in Figs. 2 and 3) is also secured to axle A at its rear end, through the

medium of box H, together with brace R, and its front end is formed with a shouldered projecting pin, *e*, which rests in an eye-lug, Z, which is secured to about the central part of the scraper-board M, or in such position that said brace will be in a horizontal position when the scraper-board is down to its work, and when the scraper-board is in that position the shoulder of pin *e* will engage lug Z. Said brace R′ is for the purpose of bracing the scraper-board against end-pressure, caused by frictional contact with the earth when at work, by means of the position of the scraper-board.

A seat-board, B, attached to the cross-rod D and cross bar E, supports the driver's seat *m* through the medium of the seat-spring *d*, in such manner as to permit the operator to have full control of his team, see his work, and conveniently operate the hand-levers L L′, to properly execute his work.

The tongue T, by means of which the machine is hauled, is provided with a pair of side braces, *r r*, secured to said tongue, which terminate with eyes so arranged as to engage with the hooks *h h*, formed integral with the plate P, which is bolted to axle A′ by means of bolts *w w*, (shown in Fig. 2,) and upon which plate the bolster-block J is pivotally secured by means of the king-bolt *t*, as stated.

The hand-levers L L′ may have their lower cranked ends provided with toothed segments for meshing with toothed racks on the back of the scraper-board, as shown in Fig. 5, instead of being pivoted to said scraper-board, as shown in Fig. 6, and in such case an upper brace-bar, R″, as shown in Fig. 5, is used to support the upper part of the scraper-board. Such construction could be used, if desired, and would be a mechanical equivalent for that shown in Fig. 6.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. In combination with the frame F, having the axles A and A′, and wheels V, V′, W, and W′, the scraper-board M, braces R R′ R², pivotally connecting said scraper-board M with the rear axle, A, and hand-levers L L′, secured to said scraper-board, as described, and adapted to vertically adjust said scraper-board, substantially as set forth.

2. In the road-grader shown and described, the combination of the scraper-board M, axle A, braces R R′ R², for pivotally connecting said scraper-board and axle, and the hand-levers L L′, pivotally connected to said scraper-board and to frame F F′, for vertically adjusting said scraper-board, as and for the purpose set forth.

3. In the grading-machine shown and described, and in combination with the frame F F′ and rear supporting-wheels, W W′, the axle A, diagonally arranged across said frame, as shown, so that each of said wheels may more closely follow the scraper-board, as and for the purpose set forth.

4. In combination with the frame F F′, the forward supporting-truck and the rear supporting-wheels and their axle arranged as described, the scraper-board M, brace-bars R, R′, and R², and hand-levers L L′, connected and arranged to operate as and for the purpose set forth.

5. In the grading-machine shown and described, and in combination with the arched frame F F′ and axle A′, the plate P, secured to said axle and having the integral hooks *h h*, bolster-block J, and king-bolt *t*, as and for the purpose set forth.

6. The means shown and described for supporting, bracing, and adjusting the scraper-board M independent of the frame F F′, consisting of the brace-bars R, R², and R′, pivotally connecting the lower part of said scraper-board with axle A, and the hand-levers L L′, pivotally connected with the upper part of said scraper-board and adapted to be independently operated to vertically adjust said scraper-board, as set forth.

7. In the road-grader described, the frame F F′, consisting of two beams, one arranged on either side at the rear part of the machine in such manner as to support the hand-levers L L′, one near either end of the scraper-board M, and braced by the cross-rods D, D′, and D², and cross-bar E, and converging and arched at their front end, as and for the purpose set forth.

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