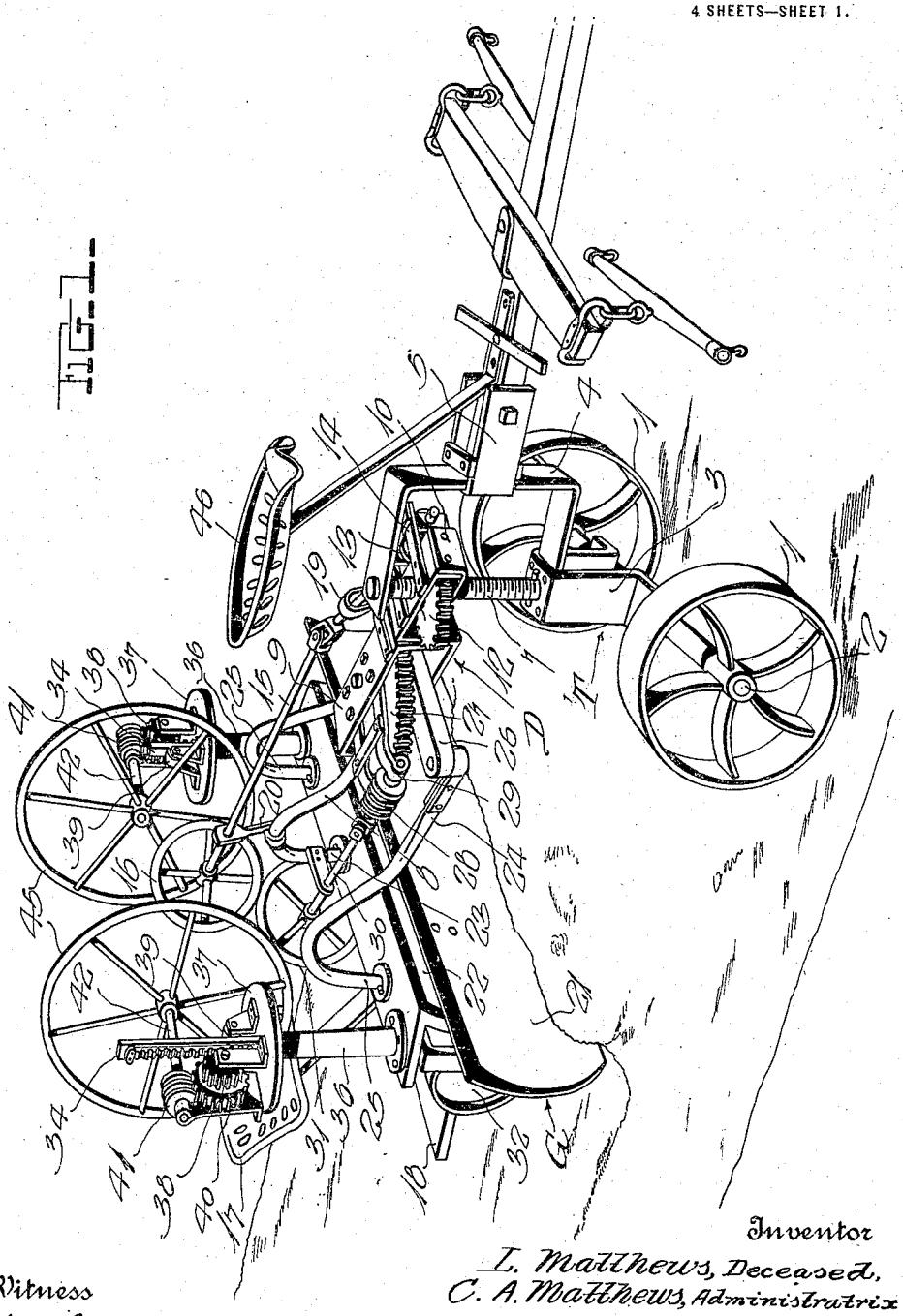
L. MATTHEWS, DEC'D.
C. A. MATTHEWS, ADMINISTRATRIX.
ROAD GRADER.
APPLICATION FILED FEB. 1, 1918.

1,277,623.

Patented Sept. 3, 1918.

4 SHEETS—SHEET 1.

FIG. 1.



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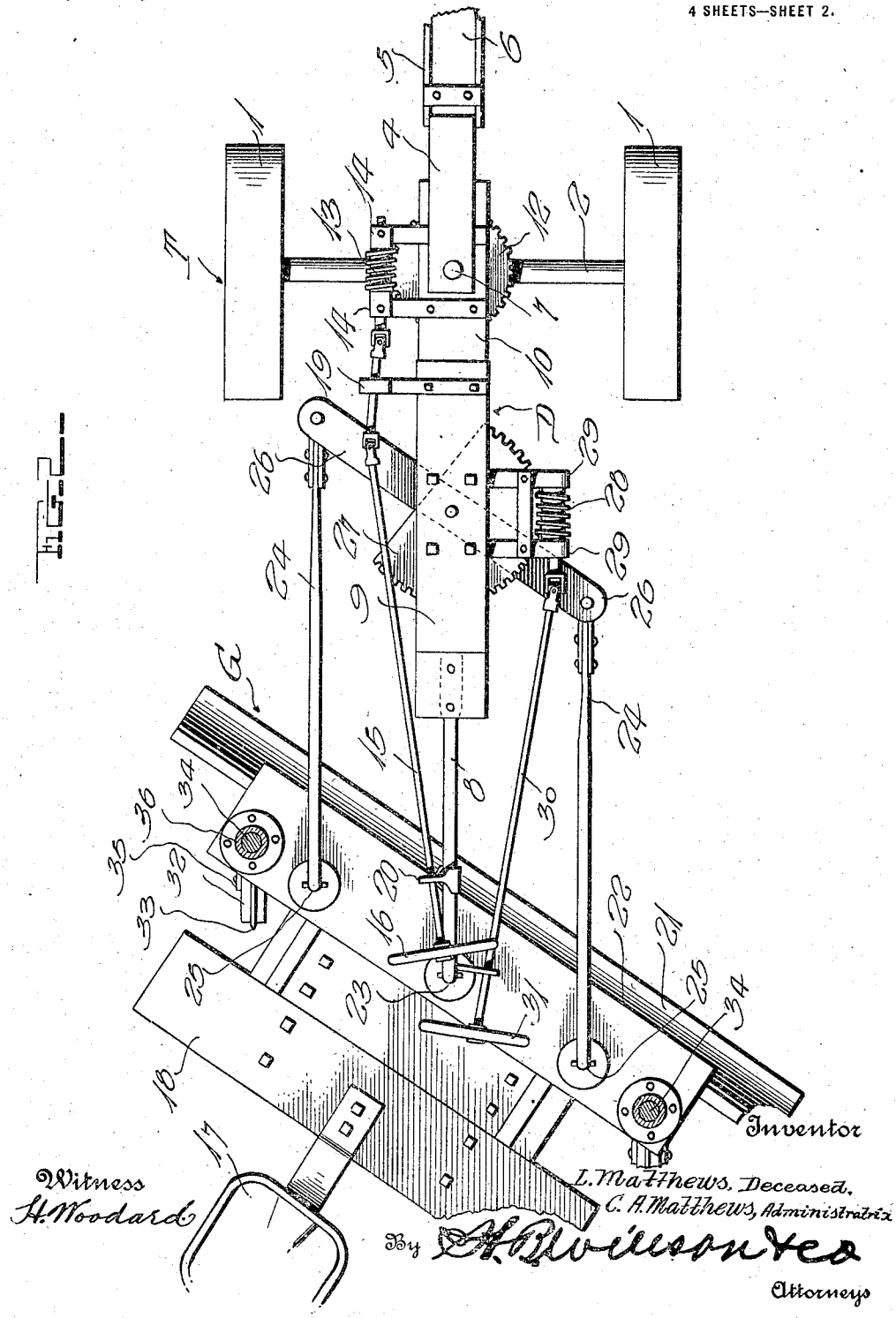
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4 SHEETS—SHEET 2.

FIG. 2.



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4 SHEETS—SHEET 3.

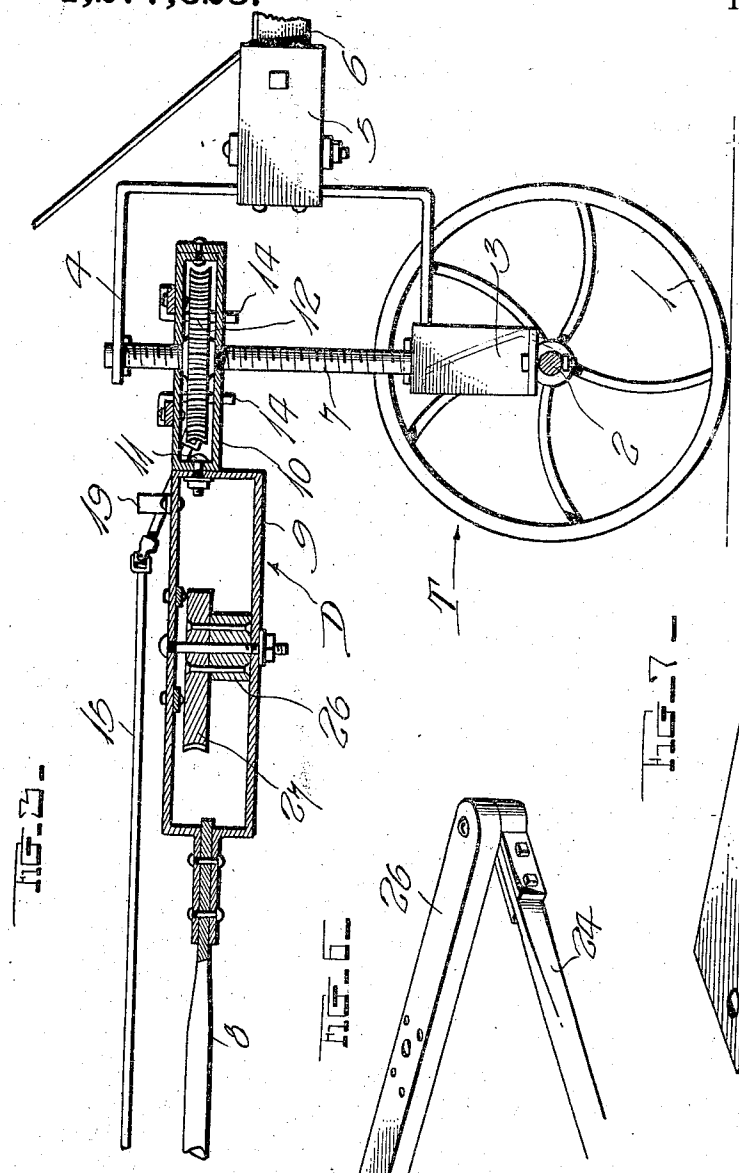


FIG. 7.

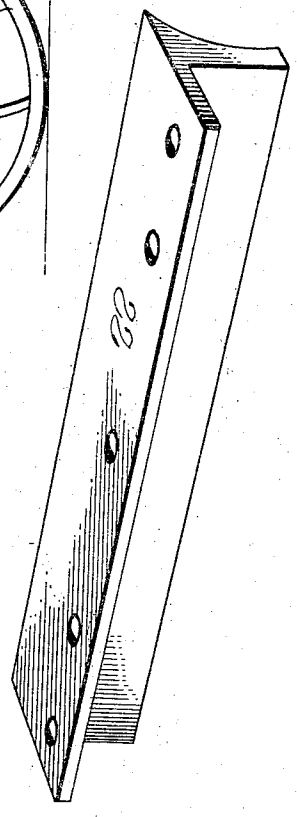


FIG. 6.

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4 SHEETS—SHEET 4.

FIG. 5.

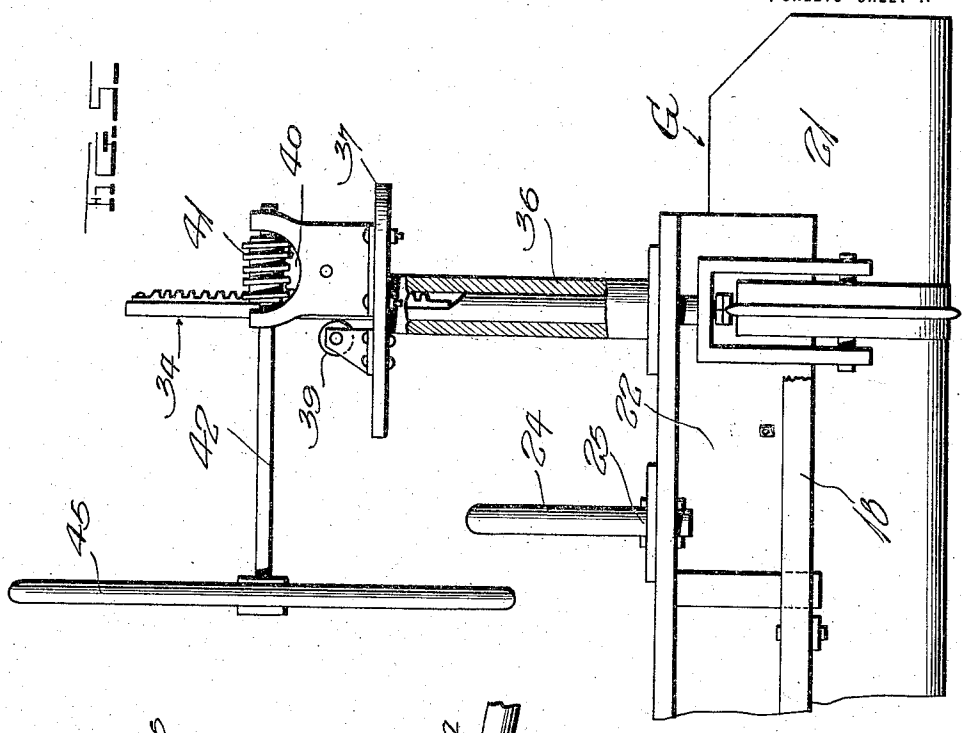
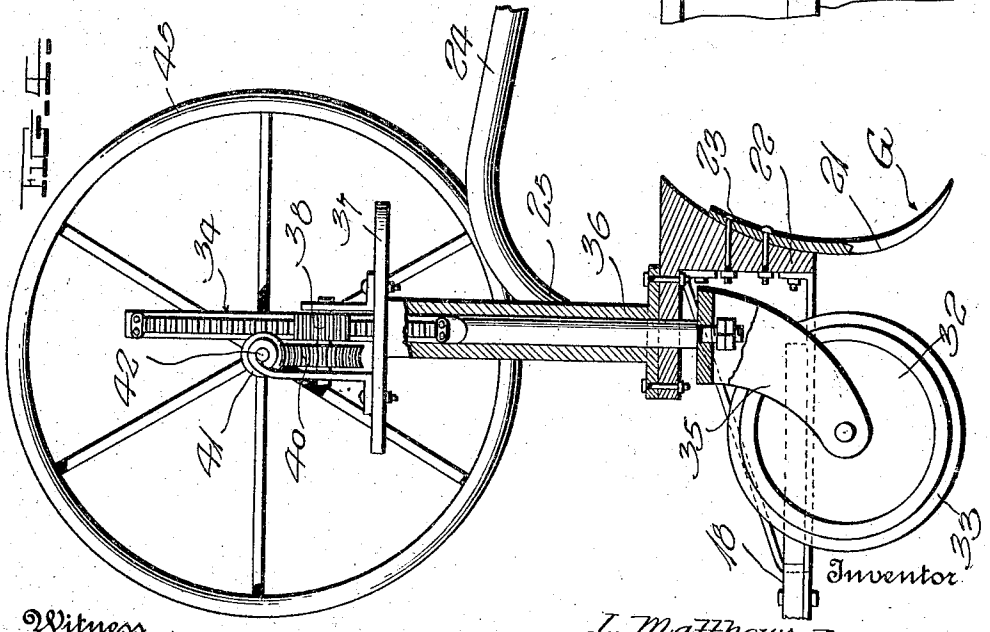


FIG. 6.



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UNITED STATES PATENT OFFICE.

LUTHER MATTHEWS, DECEASED, LATE OF PARIS, TENNESSEE, BY CLINTIE A. MATTHEWS, ADMINISTRATRIX, OF PARIS, TENNESSEE.

ROAD-GRADER.

1,277,623. Specification of Letters Patent. Patented Sept. 3, 1918.

Application filed February 1, 1918. Serial No. 214,997.

To all whom it may concern:

Be it known that LUTHER MATTHEWS, late a citizen of the United States, residing at Paris, in the county of Henry and State of Tennessee, invented certain new and useful Improvements in Road-Graders; and I, CLINTIE A. MATTHEWS, a citizen of the United States, and resident of Paris, in the county of Henry, State of Tennessee, his duly appointed administratrix, do 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.

The principal object of my invention is to simplify the general construction of road grading machines without decreasing their efficiency in any manner, and with this general object in view, the invention resides in the novel features of construction and unique combinations of parts to be hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawings which form a part of this specification and in which:

Figure 1 is a perspective view of the improved machine;

Fig. 2 is a top plan view partly in horizontal section;

Fig. 3 is a central vertical longitudinal section through the front of the machine;

Fig. 4 is a detail end elevation of the grading member and its adjusting means, parts being broken away and in section;

Fig. 5 is a rear elevation of the construction shown in Fig. 4;

Fig. 6 is a perspective view of the transverse horizontally swinging arm for adjusting the angle of the grading member; and

Fig. 7 is a perspective view of the back member of the grading blade.

Briefly speaking, the improved machine comprises a truck T, a draft member D extending rearwardly from said truck, a grading member G connected to the rear end of said draft member, means for adjusting the front end of the latter vertically, means for varying the angle of the grading member, and means for adjusting either or both ends of said grading member vertically.

The truck T includes a pair of wheels 1, an axle 2 upon which said wheels are mounted, a metal arch 3 rising from the center of said axle, and a C-shaped arm 4 secured at its lower end to the upper end of said arch, the vertical portion of said arm having a suitable bracket 5 by means of which the tongue 6 is connected with the truck. Disposed vertically between the horizontal branches of the arm 4, is a non-rotatable screw 7 for a purpose to appear.

The draft member D is located centrally of the machine and includes a draw bar 8, a longitudinally elongated frame 9 secured at its rear end to the front end of said draw bar, and a second longitudinally elongated frame 10 having its rear end swiveled at 11 to the front end of frame 9, both frames 9 and 10 having longitudinal bars spaced apart vertically as shown. Within frame 10, a worm wheel or gear 12 is rotatably mounted, said gear being threaded on the screw 7 so that its rotation will adjust the front end of the draft member D vertically as occasion may demand. A worm 13 is provided for turning gear 12, said worm being supported by a pair of bearings 14 which extend laterally from frame 10, and a flexible shaft 15 extends rearwardly from said worm, the rear end of said shaft having a hand wheel 16 adjacent an operator's seat 17 mounted on a platform 18 carried by and in rear of the grading member G. A front supporting loop 19 carried by frame 9 loosely receives the front portion of shaft 15 and a bearing 20 is mounted on the draw bar 8 to support the rear end of said shaft.

The grading member G consists of a grading blade 21 and a backing bar 22 to which the upper edge of said blade is secured, said bar being preferably of the inverted L shape shown in the drawings and having a concave front face with which said blade 21 is secured in contact. At 23, the rear end of the draw bar 8 is turned downwardly and pivoted to the center of the grading member G, said draw bar preferably passing through the backing bar 22 as shown. By this connection between the grading member and the draft member, the former may be swung to a plurality of angles in respect to the line of draft, and for the purpose of so swinging the grading member, the construction now to be described is provided.

A pair of draw bars 24 are disposed on opposite sides of bar 8 and at 25 the rear ends of said pair of bars are bent downwardly and pivoted to the backing bar 22, the front ends of said bars 24 being pivoted

to the ends of a transverse arm 26 which passes through the frame 9. A segment or worm gear 27 is also mounted in frame 9 and is rigidly secured to the arm 26 so that turning of this segment will swing the arm in question to any angular position as will be clear from Figs. 1 and 2. This angling of arm 26 is transmitted to the grading member G by means of the two draw bars 24, said member then rocking around the pivot 23. For turning segment 26, a worm 28 is provided, said worm being mounted in suitable bearings 29 extending laterally from frame 9. A shaft 30 extends rearwardly from the worm and is provided on its rear end with a hand wheel 31 adjacent the hand wheel 16.

For the purpose of varying the depth of cut made by blade 21 and for raising this blade above the earth when required, a pair of wheels 32 are provided, said wheels being preferably of the caster type and having peripheral flanges 33 which cut into the earth and serve to prevent lateral shifting of the blade. Vertical rack bars 34 rise from the forks 35 of the wheels 32 and pass through tubular standards 36 which extend upwardly from the ends of the back bar 22. The upper ends of the standards 36 are provided with circular heads 37 and upon these heads pinions 38 are mounted in any preferred manner for mesh with the teeth of the rack bar 34, said bars and pinions being retained in mesh by rollers 39 mounted in suitable brackets upon the heads 37. Worm gears 40 are formed integrally with or otherwise secured to the pinions 38, said gears being in mesh with worms 41 on a pair of transverse shafts 42 suitably mounted upon the heads 37 and having hand wheels 45 within the operator's reach. By this arrangement, it will be obvious that either or both ends of the grading member may be adjusted vertically as occasion may demand. In order that the operator may give his entire attention to the machine, he is preferably relieved of driving the team, by another person who will sit upon the seat 46 with which truck T is provided for that purpose. When the machine is tractor drawn however this seat may well be omitted.

During the operation of the machine, the front end thereof may be adjusted vertically as required by rotation of the hand wheel 16, whereas manipulation of the wheels 45 will control the depth of cut of blade 21 or will raise this blade totally above the ground when necessary. Operation of hand wheel 31 will swing the grading member around its central pivot 23 to adjust said member at a suitable angle to the line of travel. The machine is much more simple than most analogous mechanisms for performing the same work, yet no advantages are sacrificed. In fact, the simplified machine is of greater advantage due to such simplicity. The truck T is free to turn from side to side to steer the machine and relative turning of this truck and the parts in rear of frame 10, is permitted by the swivel 11 and thus no binding action whatever will be exerted upon the gear 12 and screw 7, leaving the former free to rotate easily upon the latter whenever required.

Since probably the best results are obtained from the several specific details shown and described, these details are preferably employed, but I wish it understood that within the scope of the invention as claimed, numerous minor changes may well be made.

I claim:

1. A road grader comprising a truck, a central draft member extending rearwardly from said truck and having near its front end a longitudinally elongated frame having longitudinal bars spaced apart vertically, a transverse grading member pivoted between its ends to the rear end of said draft member, a transverse arm extending through said frame, a wheel mounted in said frame and secured to said arm, means for turning said wheel, and a pair of draw bars extending between said arm and said grading member and pivoted to both.

2. A road grader comprising a truck, a central draft member extending rearwardly from said truck and having near its front end a pair of longitudinally alined frames having longitudinal bars spaced apart vertically, said frames being swiveled together on a longitudinal axis, a transverse arm extending through the rear frame, a wheel mounted in said rear frame and secured to said arm, means for turning said wheel, a pair of draw bars extending between said arm and said grading member and pivoted to both, a vertical screw carried by said truck and passing through said longitudinal bars of the front frame, and a wheel mounted in said front frame and threaded on said screw for adjusting the front end of said draft member vertically.

3. A road grader comprising a truck, a central draft member extending rearwardly from said truck and having at its front end a longitudinally disposed frame having longitudinal bars spaced apart vertically, the rear end of said member carrying an earth working implement, a vertical screw carried non-rotatably by said truck and passing through the longitudinal bars of said frame, and a wheel in said frame threaded on said screw for adjusting the front end of said draft member vertically.

4. A road grader comprising a front truck, a pair of frames alined longitudinally of the machine and swiveled together on a longitudinal axis, a central longitudinal

draw bar secured to and extending rearwardly from the rear frame, a transverse grading member pivoted between its ends to said draw bar, means for adjusting said grading member around its pivot including an operating member mounted in said rear frame, and means for connecting said front frame adjustably to said truck including an operating member mounted in the front frame.

In testimony whereof I, CLINTIE A. MATTHEWS, administratrix of the estate of LUTHER MATTHEWS, have hereunto set my hand.

CLINTIE A. MATTHEWS,
Administratrix of Luther Matthews, deceased.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."