

B. F. ELLIOTT & J. L. SUMMERS.

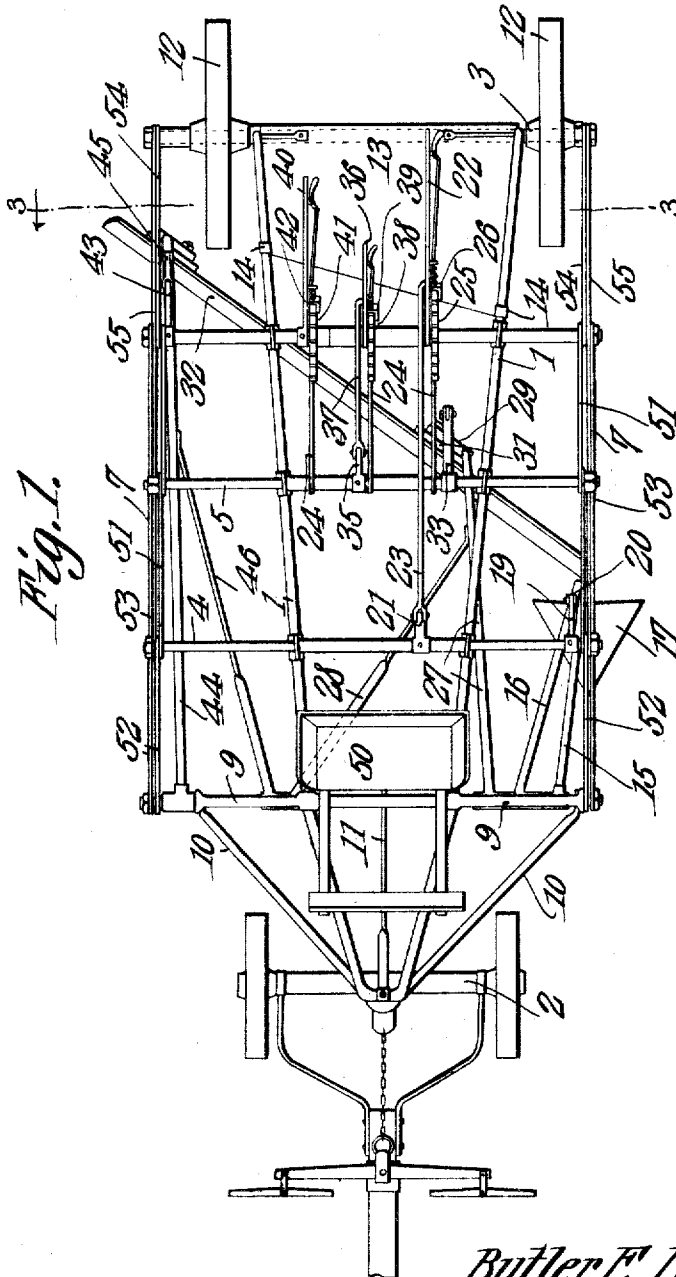
ROAD GRADING MACHINE.

APPLICATION FILED MAY 17, 1909.

953,085.

Patented Mar. 29, 1910.

3 SHEETS—SHEET 1.



Witnesses

C. C. Prescott
C. C. Prescott

Inventors
Butler F. Elliott and Jacob L. Summers
By *C. A. Snow & Co.*
Attorneys

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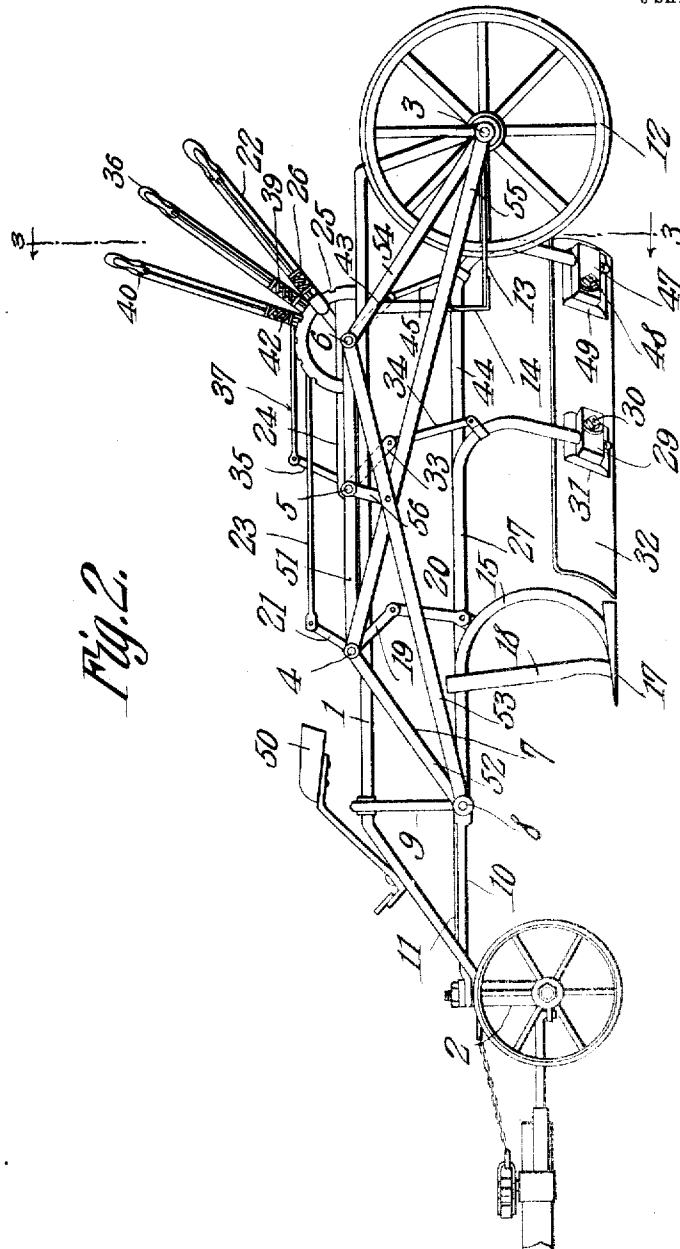


Fig. 2.

Witnesses
E. F. Elliott
C. E. Summers

Inventors
Buller F. Elliott
Jacob L. Summers
By *C. A. Snow & Co.*
Attorneys

B. F. ELLIOTT & J. L. SUMMERS.

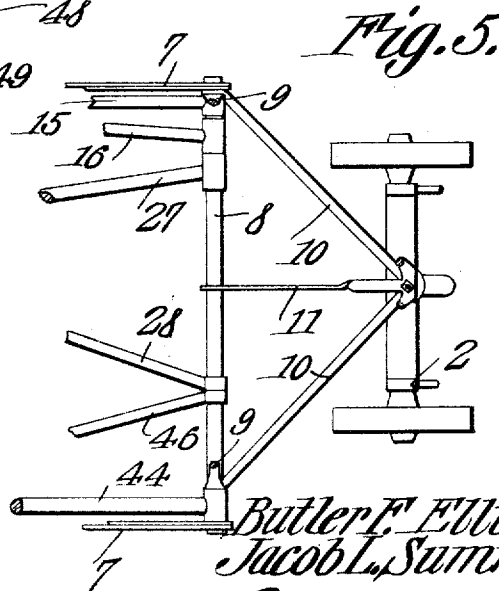
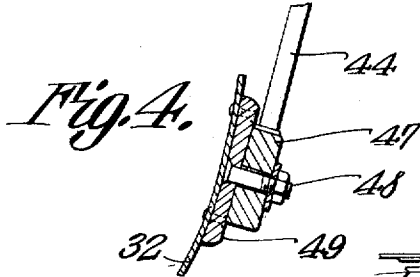
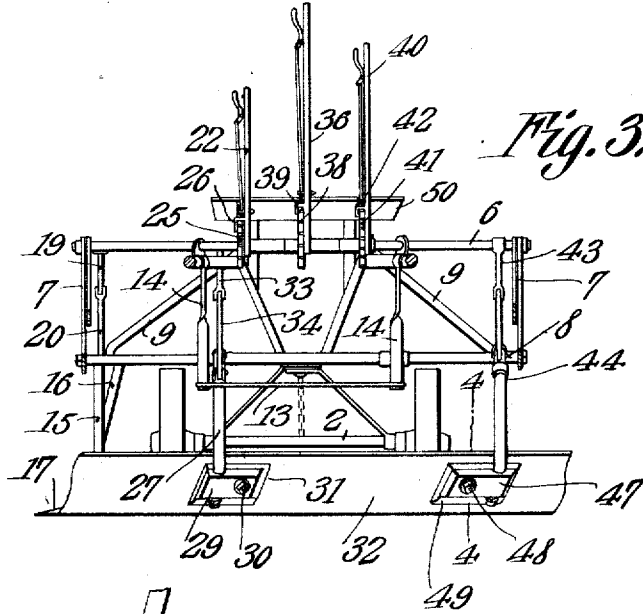
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B. F. Elliott
C. E. Premises

Inventors
Butler F. Elliott
Jacob L. Summers
By *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

BUTLER F. ELLIOTT, OF GOTEBO, AND JACOB L. SUMMERS, OF FORT COBB, OKLAHOMA.

ROAD-GRADING MACHINE.

953,085.

Specification of Letters Patent.

Patented Mar. 29, 1910,

Application filed May 17, 1909. Serial No. 486,403.

To all whom it may concern:

Be it known that we, BUTLER F. ELLIOTT and JACOB L. SUMMERS, citizens of the United States, residing, respectively, at Gotebo and Fort Cobb, in the counties of Kiowa and Caddo, State of Oklahoma, have invented a new and useful Road-Grading Machine, of which the following is a specification.

This invention has relation to road grading machines, and it consists in the novel construction and arrangement of parts hereinafter shown and described.

The object of the invention is to provide a machine of the character indicated which is light of draft and of durable structure and consequently cheap to manufacture and economical to operate.

With the above object in view the machine consists of a skeleton frame, the parts of which are so arranged as to effectually withstand the strain to which such a machine is subjected. The forward portion of the frame is mounted upon a tongue truck and the rear portion of the frame is supported by ground wheels journaled upon an axle which forms a portion of the said frame.

A plow is pivotally attached to one side of the frame and means is provided for raising and lowering the said plow. A scraper blade is also pivotally attached to the frame and has one end located behind the said plow and is disposed at an acute angle with relation to the line of draft with its other end disposed beyond the opposite side of the frame for a sufficient distance to equalize or compensate for the additional draft caused by the presence of the plow at the side of the frame. The said scraper blade is located in advance of the rear supporting wheels and consequently when the machine is in operation the said supporting wheels have smooth ground to move over. Means is provided for raising and lowering the said scraper blade and said means may be so manipulated as to raise one or the other of the ends of the said blade without affecting the opposite end.

In the accompanying drawings: Figure 1 is a top plan view of the road grading machine. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse sectional view of the same cut on the line 3-3 of Fig. 1. Fig. 4 is a detailed transverse sectional view of a portion of the machine cut on the line 4-4 of Fig. 3. Fig. 5 is a detailed view of a

cross bar which forms a portion of the frame of the machine showing parts located thereon.

The frame of the machine includes arch beams 1 which converge toward each other at their forward ends and overlap or join and pivotally connect with a tongue truck 2, which forms a support for the forward end of the frame of the machine. At their rear ends the beams 1 join with a transversely disposed axle 3 which forms the rear end of the frame of the machine.

Transversely disposed shafts 4, 5, and 6 are journaled upon the beams 1 and at their end portions project beyond the outer sides of the said beams. A truss 7 is located at each side of the machine and is connected at its rear end with the axle 3 and at intermediate points with the ends of the shafts 4, 5, and 6 and at its forward end terminates at a plane below the intermediate arch portions of the beams 1. The forward ends of the trusses 7 are connected together by a cross bar 8. Braces 9 are secured at their lower end to the outer portions of the cross bar 8 and extend over the intermediate portions of the beams 1 and are secured thereto. Braces 10 are also secured to the end portions of the cross bar 8 and converge toward each other at the point where the forward ends of the beams 1 are mounted upon the tongue truck 2 and join with the said beams at the said point. A draw bar 11 is connected with the forward ends of the beams 1 and the braces 10 and at its rear end connects with the intermediate portion of the cross bar 8. Supporting wheels 12 are journaled upon the axle 3 between the points of attachment of the trusses 7 with the said axle and the point of attachment of the beams 1 therewith. A platform 13 is mounted upon the axle 3 between the beams 1 and is braced at its forward portion by means of brackets 14 which depend from the arch portions of the said beams 1.

A standard 15 is pivotally connected at its forward end with the cross bar 8 and is provided at its inner side with a brace 16 which is also pivotally connected at its forward end with said cross bar. A plow share 17 is attached to the rear end of the said standard and a colter 18 is fixed at its lower end to the said share 17 and at its upper end to the intermediate portion of the standard 15. A laterally disposed arm 19 is fixed to the shaft 4 and at its free end is pivotally connected

by means of a link 20 with the standard 15. An arm 21 is also fixed to the shaft 4. A lever 22 is fulcrumed upon the shaft 6 and is connected with the arm 21 by means of a rod 23. Strips 24 connect the shafts 4 and 5 together and a gear segment 25 is mounted upon one of the strips 24 and is positioned concentric to the shaft 6. The lever 22 carries a spring actuated pawl 26 which is adapted to engage the teeth of the gear segment 25. The plow share 17 is of the usual arrow-head type and its outer edge projects beyond a vertical frame in which the superposed truss 7 lies and consequently the said share projects sufficiently to cut into a bank or the side of a ditch as the machine is used for repairing or grading a road bed. It will also be seen that by reason of the lever mechanism 22 and its connections through the shaft 4 with the standard 15 that means is provided for raising and lowering the share 17 and the colter 18 and that the said parts may be secured in adjusted positions.

A standard 27 is pivotally connected at its forward end with the cross bar 8 and is provided upon one side with a brace 28 which is also pivotally connected at the forward end to said cross bar. A block 29 is fixed to the lower rear end of the standard 27. The block 29 is provided with a pivot bolt 30 which has pivotal connection with a block 31 carried by a scraper blade 32. The shaft 5 is provided with an arm 33 which is pivotally connected with the standard 27 by means of a link 34. The said shaft 5 is also provided with an arm 35. A lever 36 is fulcrumed upon the shaft 6 and is operatively connected with the arm 35 by means of a rod 37. A gear segment 38 is fixed to one of the strips 24 and is positioned concentrically with relation to the shaft 6. The lever 36 carries a spring actuated pawl 39 which is adapted to engage the teeth of the gear segment 38. A lever 40 is fixed to the shaft 6 and a gear segment 41 is attached to one of the strips 24 and is concentrically positioned with relation to the said shaft 6. The said lever 40 carries a spring actuated pawl 42 which is adapted to engage the teeth of the gear segment 41. An arm 43 is fixed to the shaft 6 and is pivotally connected with a standard 44 by means of a link 45. The forward end of the standard 44 is pivoted upon the cross bar 8 and the said standard is provided at one side with a brace 46 the forward end of which is also pivotally connected to the cross bar 8. A block 47 is fixed to the lower rear end of the standard 44 and is provided with a pivot bolt 48. The pivot bolt 48 has pivotal connection with a block 49 also fixed to the rear side of the scraper blade 32. The scraper blade 32 is located in advance of the rear supporting wheel 12 and at one end is located approximately behind the middle of the plow share

17 and at its other end projects beyond the vertical plane of the truss 7 at the opposite side of the machine. An operator's seat 50 is mounted upon the forward portion of the frame of the machine.

From the above description it is obvious that by swinging the levers 36 and 40 simultaneously that the rear ends of the standards 27 and 44 will move simultaneously and thus the scraper blade 32 may be raised or lowered with its opposite end portions occupying the same relative position or by swinging either of the levers 36 or 40 while the other lever is permitted to remain at rest one or the other of the ends of the scraper blade 32 will be raised or lowered without affecting or moving the opposite end portion of the said scraper blade. Thus means is provided for tilting the scraper blade with relation to the plane of the surface of a road and for adjusting the said blade vertically with relation to the road surface and the position of the plow share 17.

The trusses 7 are of peculiar construction of which the following is a description. The truss consists of reach bars 51 which overlap at their inner ends and in which the ends of the shaft 5 are journaled. The outer ends of the said bars 51 form portions of bearing for the outer ends of the shafts 4 and 6. Inclined bars 52 overlap the forward ends of the forward reach bars 51 and also form portions of bearing for the ends of the shaft 4. The lower forward ends of the bars 51 join with the ends of the cross bar 8. Brace bars 53 overlap at their forward ends the forward ends of the inclined bars 52 and also join with the cross bar 8. At their rear ends, the said brace bars 53 receive the end portions of the shaft 6 and are located adjacent the rear ends of the rear reach bars 51. Inclined bars 54 at their upper forward ends are located adjacent the rear ends of the reach bars 55 and also receive the end portions of the shaft 6. The lower rear ends of the bars 54 join with the rear axle 3. Brace bars 55 join at their rear ends with the axle 3 and at their forward ends receive the end portions of the shaft 4. Thus it will be seen that the brace bars 53 cross the brace bars 55 and at their point of intersection they are riveted together. The strut bars 56 join with the brace bars 53 and 55 at their point of intersection and at their upper ends the said strut bars form portions of the end bearings for the shaft 5. By this arrangement of parts it will be seen that a skeleton frame-work is effected and that the parts are so disposed as to effectually brace the entire structure against the strain to which such a machine is subjected during the operation of grading or making a road.

It will be seen that the parts are so arranged that the draft may be easily divided at the opposite sides of a line extending

along the median longitudinal dimension of the machine and that means is provided for effecting adjustment of the digging and scraping members with relation to each other to effectually operate upon the sides of the road or in the ditches to remove the soil from the ditches and deposit the same upon the crown of the road.

Having described our invention what we claim as new and desire to secure by Letters Patent is:

1. A road grading machine comprising a wheel mounted frame of which transversely disposed shafts form component parts, a standard pivotally attached to the frame and carrying a digging share, means operatively connecting the standard with one of the shafts, scraper supporting standards pivotally connected with the frame, means for connecting each of the scraper supporting standards with a different shaft, a scraper blade pivotally connected with the scraper supporting standard and a separate lever mechanism operatively connected to said shaft.

2. A road grading machine comprising a frame, having longitudinally disposed beams and side trusses with cross members connecting the beams and trusses together, a supporting truck pivotally connected with the forward ends of the frame, supporting wheels journaled at the rear edges of the frame between the beams and the side trusses and a scraper blade connected with the frame.

3. A road grading machine comprising a frame consisting of a rear axle, beams at-

tached at their rear ends to the axle and converging toward each other at their forward ends, trusses secured at their rear ends to the extremities of the rear axle, a cross bar connecting the forward ends of the trusses together, braces between the cross bar and the forward portion of the beams, supporting wheels journaled upon the rear axle between the beams and the trusses, a truss pivotally connected with the forward ends of the beams, transversely disposed shafts journaled upon the beams and in the trusses, and a digging share and scraper blade operatively connected with the said shafts.

4. A road grading machine including a frame having a rear axle and a front cross bar, longitudinally disposed beams connected at their rear ends with the axle, braces connecting the forward portions of the beams with the cross bar, a truck pivotally connected with the forward ends of the beams, wheels journaled upon the axle, shafts transversely disposed with relation to the beams, and side trusses connected at their ends with the axle and cross bar respectively and at intermediate points with the said shafts and earth engaging members operatively connected with the shafts.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

BUTLER F. ELLIOTT.
JACOB L. SUMMERS.

Witnesses:

CHAS. W. VAN EATON,
C. W. LUDWICK.