B. WHITTEMORE.

ROAD GRADING MACHINE.

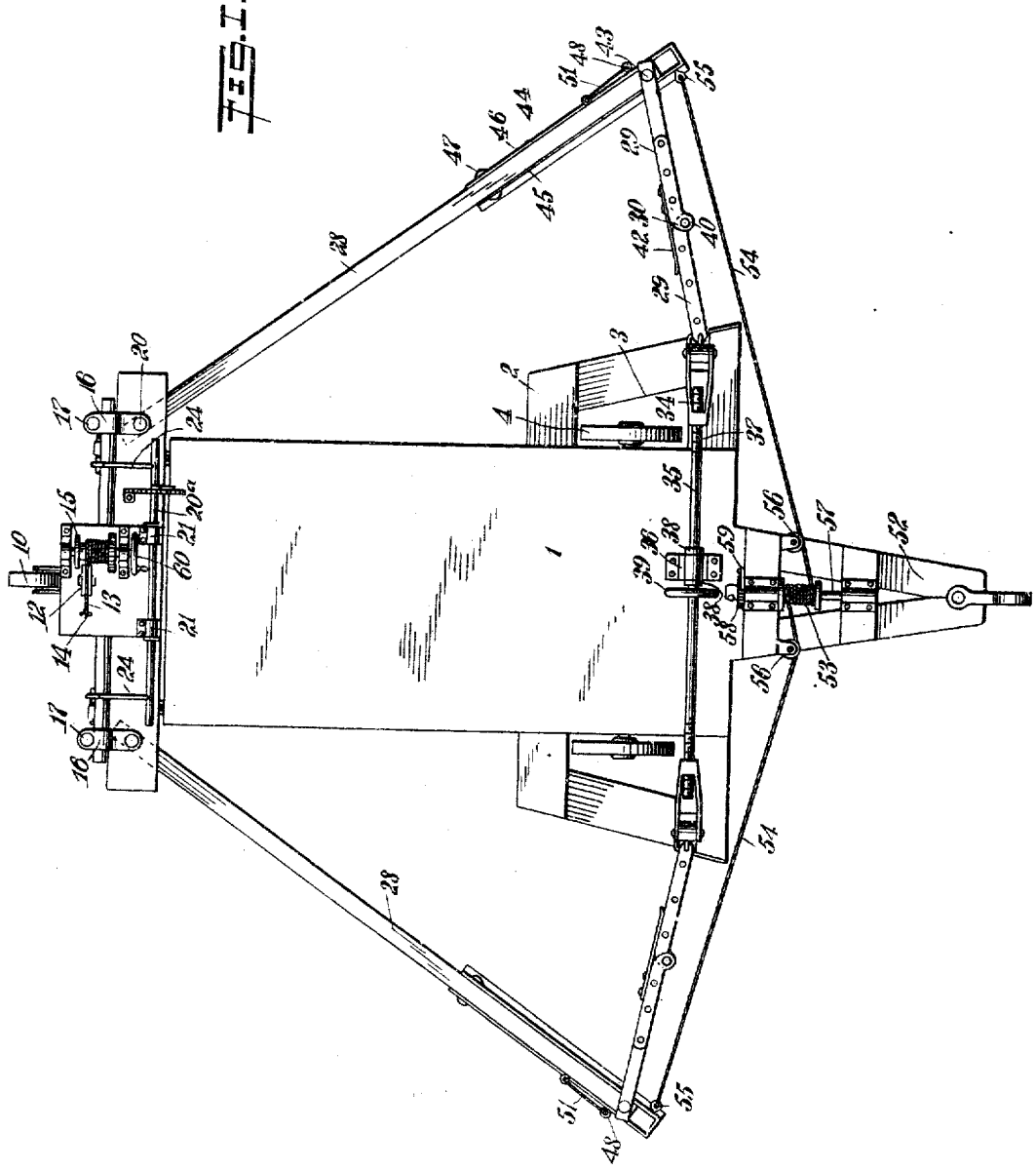
APPLICATION FILED OCT. 14, 1909.

952,395.

Patented Mar. 15, 1910.

2 SHEETS—SHEET 1.

FIG. 1.



WITNESSES

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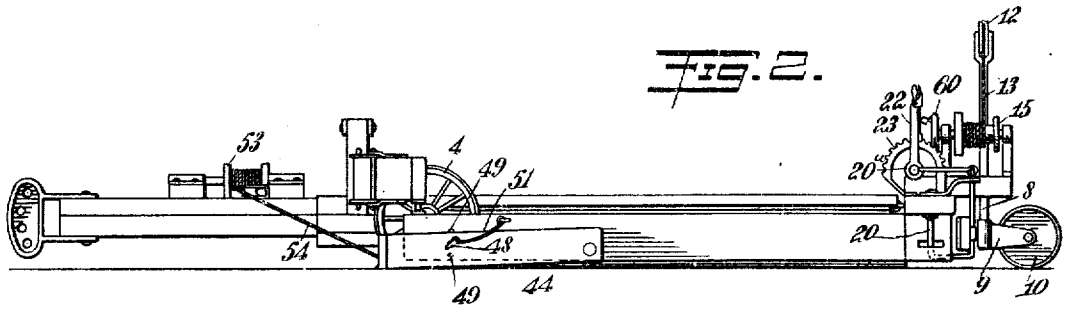
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2 SHEETS—SHEET 2.

Fig. 2.



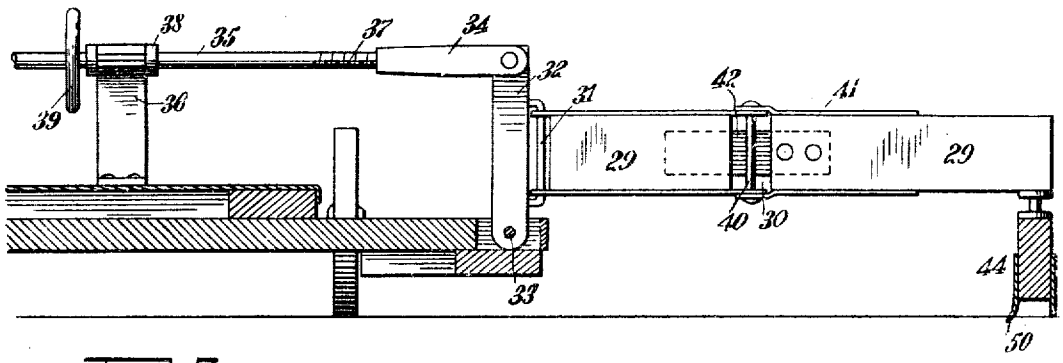


Fig. 3.

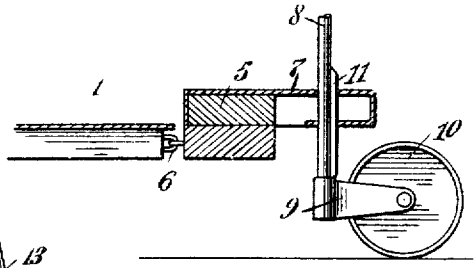


Fig. 4.

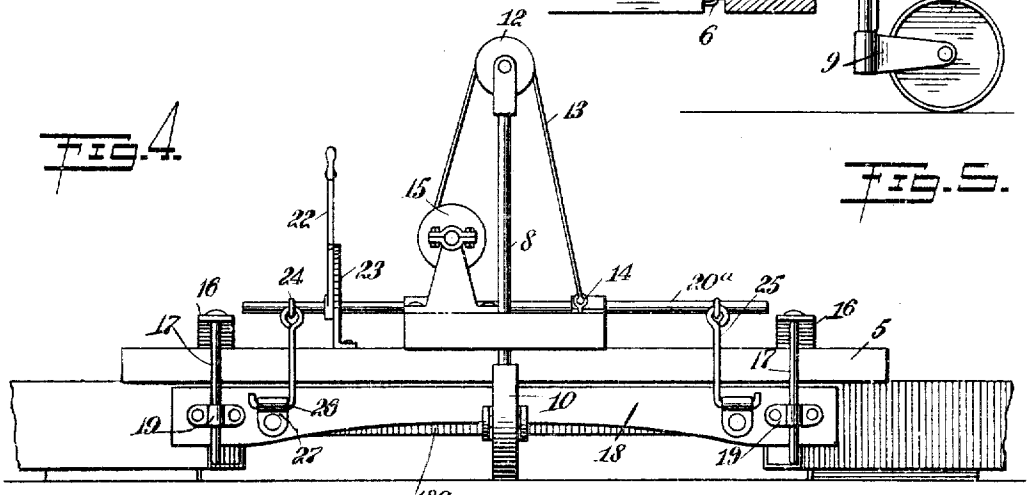


Fig. 5.

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UNITED STATES PATENT OFFICE.

BENNIE WHITTEMORE, OF ALBERT LEA, MINNESOTA.

ROAD-GRADING MACHINE.

952,395. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed October 14, 1909. Serial No. 522,572.

To all whom it may concern:

Be it known that I, BENNIE WHITTEMORE, a citizen of the United States, and a resident of Albert Lea, in the county of Freeborn and State of Minnesota, have invented a new and Improved Road-Grading Machine, of which the following is a full, clear, and exact description.

This invention relates to road scrapers or graders, and the object of the invention is to produce an implement of this class which is simple of construction and which can be readily operated so as to grade a road.

The general structure of the machine is such that the material of the road-bed is scraped from the sides and brought inwardly to the middle portion or crown of the road.

The invention resides particularly in the means for adjusting the parts and for controlling the distribution of the road material.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan of the implement; Fig. 2 is a side elevation of the implement; Fig. 3 is a vertical cross section through the forward part of the machine, showing one side of the same and illustrating details of its construction; Fig. 4 is a rear elevation of the machine, the outer portions thereof being broken away; and Fig. 5 is a vertical section taken at the rear end of the implement.

Referring more particularly to the parts, and especially to Figs. 1 and 2, 1 represents the body of the implement which may be rectangular, as shown, and in the form of a platform. At the forward end of this platform a frame 2 is formed, which projects at each side of the platform, and this frame presents openings 3 in which wheels 4 are mounted, said wheels being disposed, respectively, at each side of the body.

As indicated most clearly in Fig. 5, at the rear end of the platform 1, an end board or tail board 5 is attached by means of staples 6, said staples being attached at the forward edge of the end board. Near the middle portion of this end board 5, a rectangular plate 7 is attached, and through this plate passes a vertical stem or spindle 8. The lower end of this stem or spindle 8 carries a rigid wheel fork 9, which projects rearwardly, carrying a rear or trailer wheel 10. The side of this stem 8 is provided with a key or feather 11 which prevents the stem from rotating. In this way the wheel fork is maintained constantly projecting rearwardly on the central axis of the implement. On the upper end of the stem 8, as indicated in Fig. 4, a wheel or pulley 12 is attached, and over this pulley 12, a cord 13 passes, one end of which is attached to an anchor bolt 14 on the upper side of the plate; the other end of this cord is wrapped upon an adjusting drum 15. By rotating this drum, the elevation of the end board 5 will be adjusted, that is, if the cord is wrapped more completely upon the drum, the end board will be raised, and vice versa.

Near the ends of the end board 5, brackets 16 are provided which consist of flat metal bars, the ends of which are attached rigidly to the upper face of the board. The rear portions of these brackets are offset upwardly, and are provided with downwardly extending guide stems 17, as indicated most clearly in Fig. 4. Mounted to slide up and down on these stems 17, I provide a shaper board or shaper 18. The rear side of this shaper board is provided with guide brackets 19 which receive the stems, as shown. As indicated most clearly in Fig. 2, the lower ends of the stems 17 are bent inwardly and upwardly so as to form shanks 20 which are attached to the under side of the end board 5, as indicated. In order to adjust the height of this shaper 18 on the stem 17 I provide a transverse shaft 20^a which is rotatably mounted in brackets 21 on the end board. At a suitable point this shaft carries a rigid adjusting lever 22, which lever cooperates with a segment 23 which is fixed to the end board, as indicated. The shaft 20^a is provided with rearwardly extending arms 24, and to the ends of these arms, links 25 are attached, which hang downwardly. These links 25 are bent laterally at their rear ends so as to form hooks 26 which are loosely mounted in anchor plates 27, said anchor plates being rigidly secured on the rear side of the shaper, as shown.

On the shanks 20 of the stems, wing boards

or scrapers 28 are pivotally attached. These wings or wing boards normally extend forwardly in an inclined direction so that they diverge forwardly, as shown. To the forward ends of these wings, links 29 are attached which are connected by a flexible joint 30, as shown. The foremost links are attached pivotally to wrist bars 31, as indicated in Fig. 3, said wrist bars being secured to the sides of adjusting posts 32. These posts are normally disposed in a vertical position, the lower ends of the posts being pivotally supported on pivot bolts 33 so that the posts may swing outwardly or inwardly when being adjusted. To the upper ends of the posts 32, shanks 34 are attached, and these shanks are connected by an adjusting rod 35 which passes rotatably through a pedestal bearing 36. The ends of the adjusting rods 35 are provided with screw threads 37 of opposite pitch, that is, one is a right-hand thread, while the other is a left-hand thread. At the pedestal 36, the adjusting rod or shaft 35 is provided with collars 38 which prevent the rod from shifting laterally. Also near the pedestal the rod is provided with a hand-wheel 39 for adjusting it, as will be readily understood. The flexible joint 30 includes vertically disposed pivot bolts 40, the ends of which are secured in metal straps 41 which reinforce the edges of the links 29, as illustrated in Fig. 3. At the sides of the joint, reinforcing plates 42 are provided. These plates are secured to one link only so that the free portions of the plates project across the adjacent link. These plates limit the rearward swinging movement of the outer ends of the outermost links resiliently, and they also cause the joint 30 to "break" rearwardly. The outer ends of the outermost links 29 are attached by pivot bolts 43 to the forward ends of the wings. On the forward ends of the wings near the point of attachment of the links, scraper plates or scrapers 44 are provided. These scrapers are in the form of bifurcated plates presenting face plates 45 on the forward side of the wings, and back plates 46 on the rear side. The rear ends of these scrapers are attached by means of pivot bolts 47 so that the forward ends of the scrapers can be raised or lowered.

In order to enable the forward ends of the scrapers to be adjusted, I provide a movable adjusting pin 48 which is adapted to be adjusted in any one of several openings 49 formed in the wings, said openings being adapted to aline with a similar opening in the scraper, through which the pin 48 passes, as will be readily understood. The lower edges of the face plates 45 are bent inwardly and forwardly so as to form cutting edges 50. In order to prevent the pins 48 from becoming loose, they are secured by short cords 51, as indicated in Fig. 2.

The forward end of the platform 1 is formed with an extension or tongue 52, and on this tongue a drum 53 is mounted, upon which there is coiled an adjusting cord, the ends 54 whereof extend laterally and are attached by suitable eye-bolts 55 to the ends of the wings 28. Adjacent to the drum, these cords pass in front of suitable guide pulleys 56, as indicated. The shaft 57 of this drum is provided with a ratchet wheel 58, with which coöperates a pawl 59, as indicated.

In the operation of the implement, it may be drawn along by horses, or it may be propelled by an engine by any suitable arrangement, not shown. By means of the adjusting rod or screw 35, the position of the posts 32 can be adjusted. In this way the elevation of the forward ends of the wings 28 may be regulated. As the implement advances, the scrapers 44 scrape the material from the road-bed, and the inclination of the scraper forces this material inwardly toward the middle of the road. In this way the material can be crowned at the middle of the road and may be caught by the shaper 18 and carried along, as desired. By raising the shaper 18 by means of the lever 22, the material may be left in places in the road-way. In this connection attention is called to the fact that the lower edge 18^a of the shaper is slightly concaved or crowned so as to give the road-bed the usual crown shape. By means of a hand-wheel 60 which is carried rigidly upon the shaft of the drum 15, the drum 15 may be rotated so as to adjust the height of the rear end of the implement. By means of the forward drum 53 the inclination of the wings may be adjusted as desired, that is, their forward ends may be made to approach nearer to the central axis of the implement.

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

1. An implement of the class described, comprising a body, an end board attached to the rear end of said body, a wheel disposed near the rear end of said body, means for mounting said end board on said wheel, means for adjusting the height of said end board with respect to said wheel, and wings carrying scrapers attached to said end board.

2. An implement of the class described, comprising a body, an end board attached to the rear end of said body, a wheel disposed near the rear end of said body, means for mounting said end board on said wheel, means for adjusting the height of said end board with respect to said wheel, wings carrying scrapers attached to said end board, said wings diverging in a forward di-

rection, and means carried by the forward end of said body for adjusting the lateral position of the forward ends of the wings.

3. An implement of the class described, comprising a body, an end board attached to the rear end of said body, a wheel disposed near the rear end of said body, means for mounting said end board on said wheel, means for adjusting the height of said end board with respect to said wheel, wings carrying scrapers attached to said end board, said wings diverging in a forward direction, means carried by the forward end of said body for adjusting the lateral position of the forward ends of the wings, and means for adjusting the elevation of the forward ends of said wings.

4. In an implement of the class described, in combination, a body comprising a frame, posts mounted on said frame and adapted to swing in a lateral direction, wings mounted in an inclined position, means for supporting the rear ends of said wings, links connecting the forward ends of said wings with said posts, and means for adjusting the inclination of said posts so as to raise or lower the forward ends of said wings.

5. In an implement of the class described, in combination, a body comprising a frame, posts mounted on said frame and adapted to swing in a lateral direction, wings mounted in an inclined position, means for supporting the rear ends of said wings, links connecting the forward ends of said wings with said posts, means for adjusting the inclination of said posts so as to raise or lower the forward ends of said wings, and means for adjusting the height of the rear ends of said wings.

6. In an implement of the class described, in combination, a body including a frame, posts mounted on said frame for swinging outwardly and inwardly, wings mounted in an inclined position at the sides of said body, means for supporting the rear ends of said wings, links connecting the forward ends of said wings with said posts to adjust the same, and means independent of said links for adjusting the inclination of said wings.

7. In an implement of the class described, in combination, a body including a frame, posts pivotally mounted on said frame and adapted to swing outwardly, means mounted on said body for swinging said posts in and out, an end board attached to the rear end of said body, a wheel supporting said end board, means for adjusting the height of said end board with respect to said wheel, wings attached pivotally to said end board extending forwardly and diverging, links connecting said posts with the forward ends of said wings, and means independent of said links for drawing said wings inwardly.

8. In an implement of the class described, in combination, a body, wheels supporting the forward end of said body, an end board attached to the rear end of said body, a trailer wheel supporting said end board, means for adjusting the height of said end board with respect to said trailer wheel, wings attached pivotally at their rear ends to said end board and diverging in a forward direction, and means for connecting the forward ends of said wings with said body for adjusting said wings.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BENNIE WHITTEMORE.

Witnesses:

ELIANORE HANSON,

NORMAN E. PETERSON.