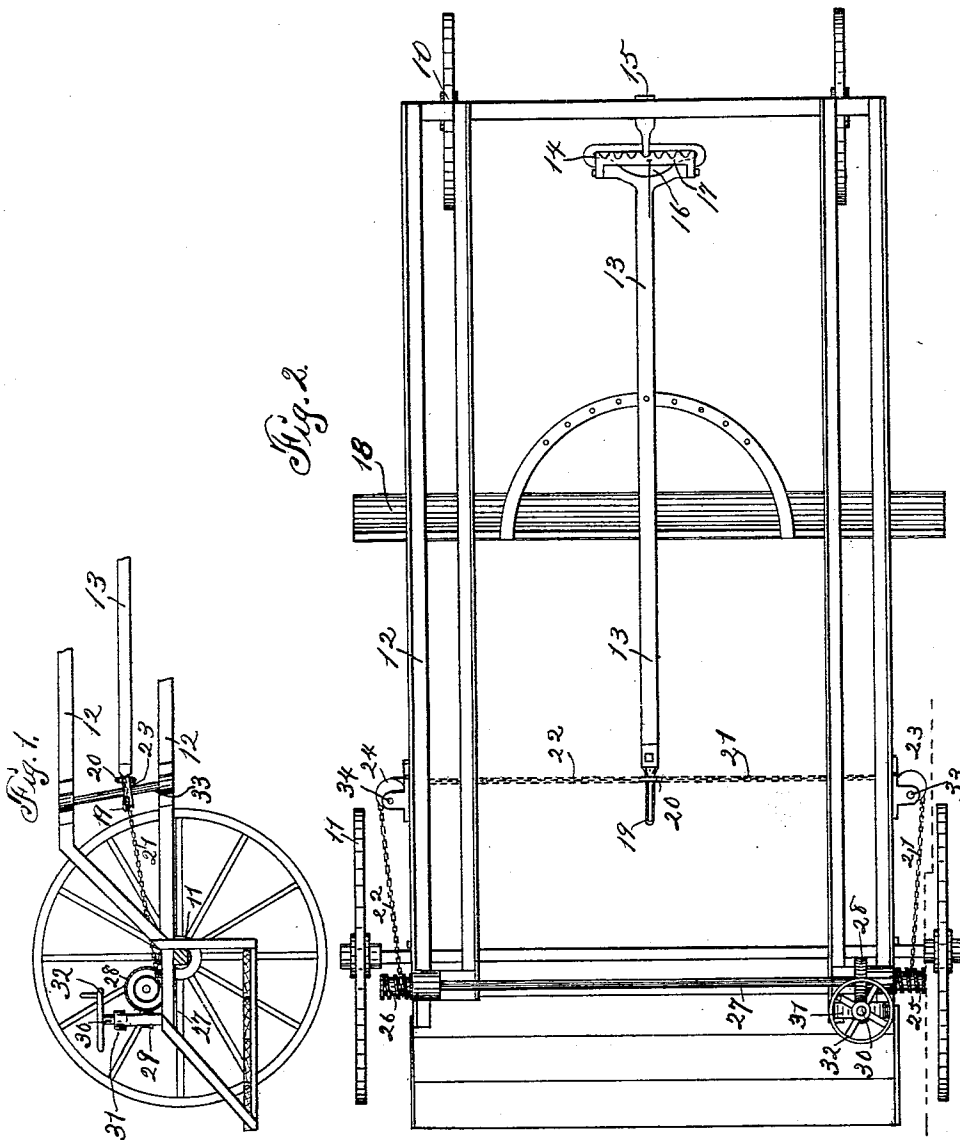


(No Model.)

J. M. HOLLAND.
ROAD GRADER.

No. 555,095.

Patented Feb. 25, 1896.



Witnesses:
W. A. Ballard.
J. C. McEland

James M. Holland,
by J. C. McEland
his Attorney.

UNITED STATES PATENT OFFICE.

JAMES M. HOLLAND, OF MOUNT PLEASANT, IOWA, ASSIGNOR TO THE
MOUNT PLEASANT ROAD GRADER COMPANY, OF SAME PLACE.

ROAD-GRADER.

SPECIFICATION forming part of Letters Patent No. 555,095, dated February 25, 1896.

Application filed January 5, 1894. Serial No. 495,772. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. HOLLAND, a citizen of the United States, and a resident of Mount Pleasant, in the county of Henry and State of Iowa, have invented certain new and useful Improvements in Road-Graders, of which the following is a specification.

The object of my invention is to provide improved means for laterally moving the scraper or scraper-supporting mechanism of a road-grader, the means so employed being instantaneous in operation, a secure lock when the scraper is stationary, and of a powerful character, as is desirable in shifting the said scraper against the resistance of a bank or load of dirt.

My invention consists in the combination, with a scraper or the mechanism supporting the same, of a worm-gear adapted for manual operation and connection between the said worm-gear and the said scraper or supporting mechanism.

My invention consists further in the construction, arrangement, and combination of parts hereinafter set forth, pointed out in my claim, and illustrated by the accompanying drawings, in which—

Figure 1 is a sectional elevation of the rear portion of the machine. Fig. 2 is a plan view of the machine.

In the construction of the device as shown the numeral 10 designates the forward trucks, 11 the rear trucks, and 12 the main frame mounted upon and supported by said trucks.

A scraper-bar 13 is located between the trucks, and is provided with an eye-block 14 on its forward end, adapted for connection with the forward truck, 10, by means of a clevis 15. The eye-block 14 is provided with an eye 16 having its greatest dimension transversely of the scraper-bar, and a latch 17 is hinged to one side of said eye-block and is adapted to be raised and lowered relative thereto. The latch 17 is notched at the edge thereof adjacent to the forward side of the eye-block, in any one of which notches the clevis 15 is adapted to be retained, thus determining the relative position of the eye-block to the forward truck.

A scraper-blade 18 is suspended from the scraper-bar, the detailed construction of the

said scraper-blade and its connections with the scraper-bar being described and illustrated in Letters Patent of the United States, No. 484,429, issued to me October 18, 1892.

The rear end of the scraper-bar 13 terminates in a rudder-tongue 19, on which is mounted a ring 20. The ring 20 forms a connection between the adjacent ends of chains 21 22, which latter extend in opposite directions directly across the main frame 12 and at right angles thereto and are driven through pulleys 23 24, respectively. The chains 21 22 extend rearwardly relative to the machine from the pulleys 23 24 to points of attachment to drums 25 26, respectively, which drums are mounted on opposite ends of a rotatable shaft 27, mounted transversely of and in the rear end portion of the main frame. The drums 25 26 are spirally grooved with counterpart spirals, and the connection of the chain ends therewith is such that the chains wind thereon in opposite directions relative to each other in order that in the rotation of the drums the slack chain produced by the unwinding from one drum will be immediately taken up by the accumulation of chain upon the remaining drum, resulting in a consequent lateral movement of the ring 20 and tongue 19 corresponding with the length of chain unwound from one drum.

A pinion 28 is rigidly secured upon the shaft 27 adjacent to one of the drums, which pinion meshes with and is acted upon by a worm 29 formed on a shaft 30 vertically positioned in a bracket 31 attached to the rear end of the main frame. The shaft 30 is surmounted by a crank-wheel 32, adapted for manual actuation to rotate said shaft.

It will be observed that by the employment of the worm-gear and the connections between said worm-gear and the scraper-blade a sensitively-operating powerful leverage is obtained, whereby the scraper-blade may be instantly easily operated, regardless of load or endwise resistance, to take more "land" from a bank, or to discharge the earth outside the track of the truck-wheels, or to avoid an obstruction which would otherwise damage the machine or necessitate the "backing" of the entire machine to obviate.

The pulleys 23 24 are respectively mounted

upon and rotate about standards 33 34, which standards are inclined inwardly and rearwardly to compensate for the variation of strain upon the chains occasioned by the rise and fall of the scraper-bar when shifted into different horizontal planes, as described in the aforementioned patent.

Slight variation in the position of the scraper-bar relative to a given horizontal plane is compensated for by the automatic shifting of the tongue 19 within the ring 20.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

In a road-grader the combination of a scraper-bar, a scraper-blade suspended from said bar, a rotatable shaft located in prox-

imity to said bar, drums located on said shaft and provided with spiral grooves, chains connected to said drums and adapted to be oppositely wound thereon relative to each other, a ring connecting the adjacent ends of said chains and connected with said scraper-bar, pulleys supporting and guiding the bight of said chains, and a manually-operated worm-gear connected with and adapted to act upon said shaft, whereby the said scraper-blade may be swung laterally by the manipulation of the worm-gear.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

JAMES M. HOLLAND.

In presence of—

H. H. CARTER,

W. S. WITHROW.