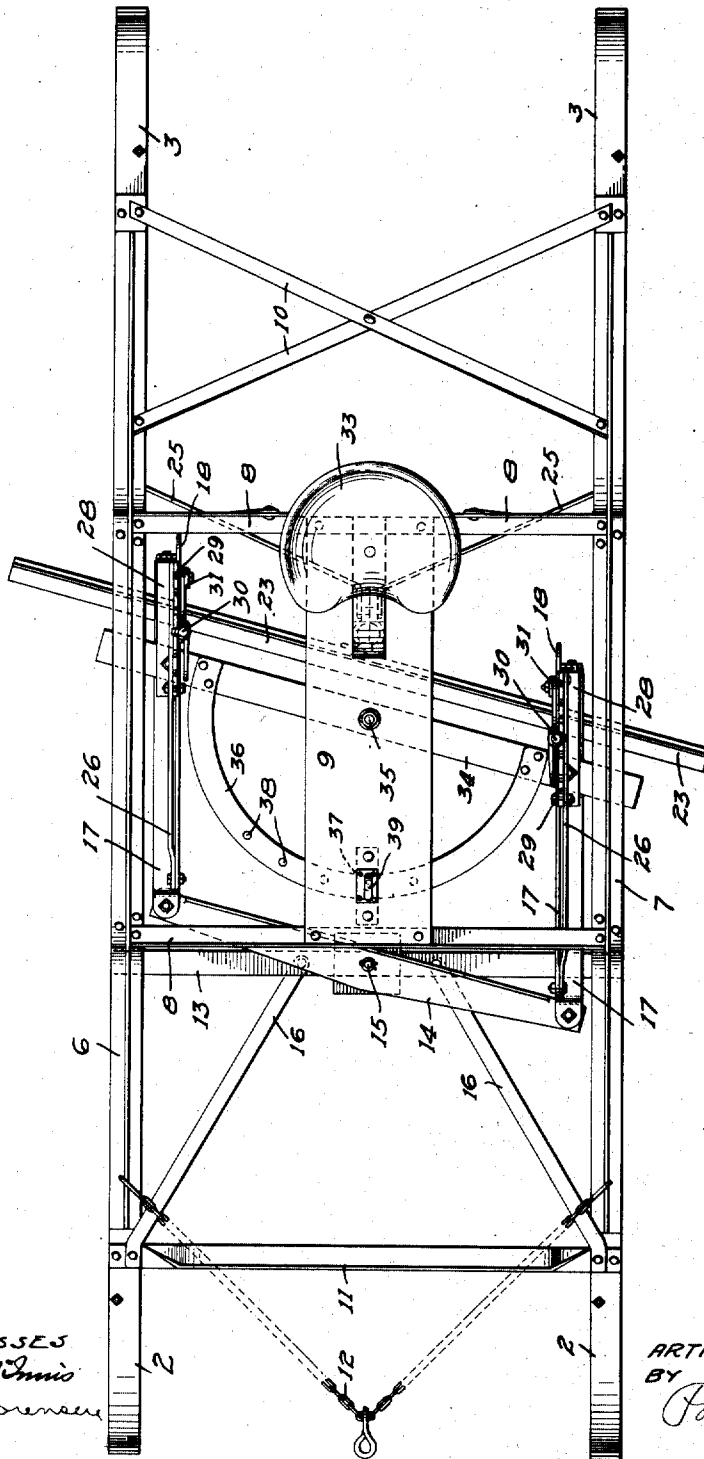


A. O. HUBBARD.
ROAD PLANING MACHINE.
APPLICATION FILED DEC. 27, 1912.

1,232,314.

Patented July 3, 1917.
3 SHEETS—SHEET 1.



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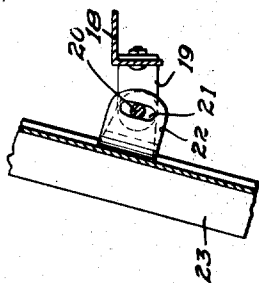


FIG. 6.

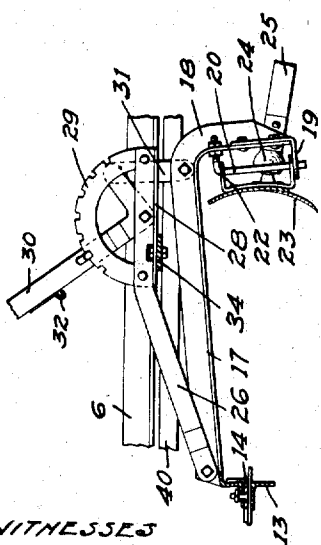


FIG. 5.

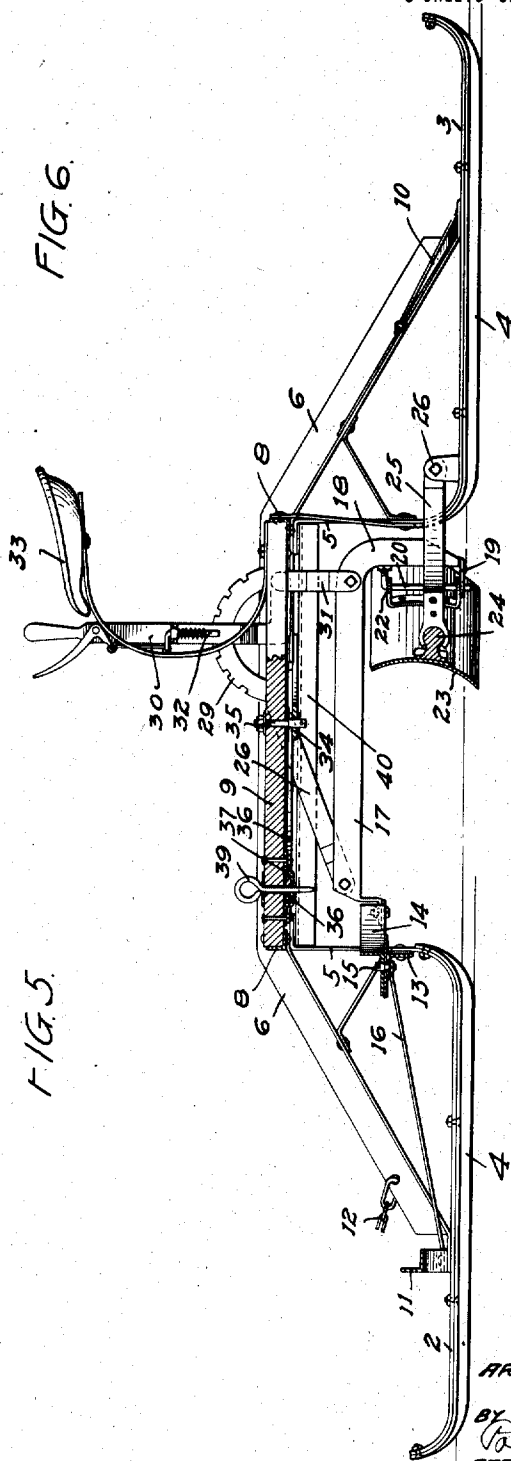


FIG. 2.

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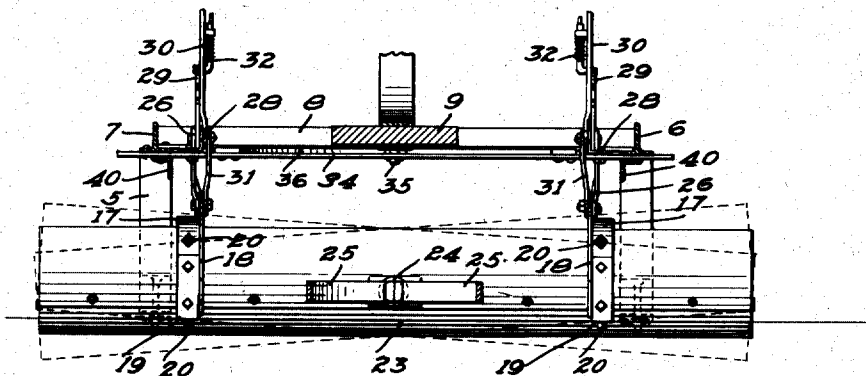


FIG. 3

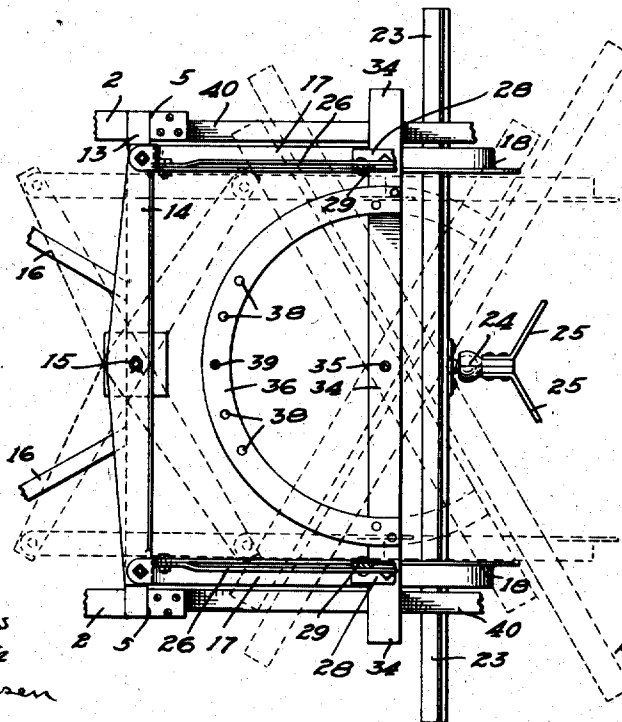


FIG. 4

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UNITED STATES PATENT OFFICE.

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ROAD-PLANING MACHINE.

1,232,314.

Specification of Letters Patent.

Patented July 3, 1917.

Application filed December 27, 1912. Serial No. 738,885.

To all whom it may concern:

Be it known that I, ARTHUR O. HUBBARD, a citizen of the United States, resident of Minneapolis, in the county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Road-Planing Machines, of which the following is a specification.

My invention relates to machines adapted for planing purposes and the object of the invention is to provide a machine of comparatively light but strong and durable construction and one which will allow the planer blade to be swung at any desired angle to the work.

A further object is to provide a planing machine having a mechanism which will allow the quick and convenient adjustment of the planer blade.

The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a plan view of a planing machine embodying my invention.

Fig. 2 is a longitudinal sectional view of the same.

Fig. 3 is a transverse sectional view.

Fig. 4 is a plan section of the middle portion of the machine, showing the different adjustments of the blade.

Fig. 5 is a detail sectional view showing the mechanism for raising and lowering the planer blade.

Fig. 6 is a detail view, illustrating the connection between the planer blade and the lifting mechanism.

In the drawings 2 and 3 represent forward and rear pairs of runners, composed, preferably, of flat bar iron having upwardly turned ends. To these runners bars 4, T-shaped in cross section, are bolted, the vertical flanges of the bars 4 digging into the soil when the machine is in use and holding the runners against lateral movement. The inner ends 5 of the runners are extended vertically for a suitable distance and are bolted to the horizontal middle portions of T-shaped truss bars 6 and 7 which have their forward and rear ends bolted to the middle portions of the forward and rear runners and form a rigid truss frame between the pairs of runners. Cross bars 8 are secured to the horizontal flanges of the

truss bars and the middle portions of these cross bars are rigidly connected to the ends of a comparatively narrow platform 9 consisting preferably of a wooden plank extending lengthwise of the middle portion of the machine. Suitable braces 10 are interposed between the rear portions of the T truss bars and a cross bar 11 connects the forward portions of said T bars and serves to brace and strengthen the runners and hold them in parallel alinement with one another. The forward portion of the truss bars is provided with a suitable draft connection 12.

Upon the upwardly turned end portions 5 of the forward runners an angle bar 13 is bolted and extends transversely of the machine. A bar 14 is centrally pivoted at 15 on the horizontal flange of this bar and braces 16 connect the middle portion of the bar 13 with the forward ends of the truss bars adjacent to the ends of the bar 11. Draft bars 17 are pivoted to the ends of the bar 14 and extend backwardly therefrom and have downwardly turned rear ends 18. Forwardly extending ears 19 are preferably formed on the ends 18 and pins 20 are adjustably mounted in said ends 18 parallel, substantially therewith, and are adapted to slip into slots 21 provided in ears 22 on the rear of the planer blade 23 and also enter sockets in the ears 19, thereby forming a pivotal connection between the planer blade and the draft bars 17. The slots 21 allow one end of the planer blade to be tilted independently of the opposite end. The middle portion of the blade 23 has a ball and socket bearing 24 with a fork 25 which has its arms pivoted at 26 on the rear runners. This ball and socket bearing allows the planer to be swung freely to its different working positions and adapt itself to the work.

To the upright flange of each draft bar 17 a strap 26 is pivoted and extends upwardly and backwardly therefrom, and is provided with a substantially horizontal rear portion to which an angle bar 38 is bolted through the ends of a quadrant 29. A lever 30 is provided in connection with each quadrant, pivoted to the strap 27 and the angle bar 28 and connected by a link 31 with the rear portion of the draft bar 17 beneath. Each lever is provided with the usual locking latch 32 and the driver's seat 33 is preferably located near the rear cross

bar 8 on the platform 9, where each lever can be conveniently operated for raising and lowering the planer blade or tilting either end of it. The horizontal flange of the angle bar 28 is pivoted to a cross bar 34 parallel with the rocker 14 and having a central pivot 35 in the platform 9. A substantially semi-circular band 36 is secured at its ends to the bar 34 and is adapted to slide in a guide 37 mounted on the underside of the platform 9 and said band 36 has a series of holes 38 therein at intervals adapted to receive a locking pin 39. Upon the removal of this pin the parallel members 14 and 34 may be swung forward or backward, forming in effect a parallel link motion to shift the planer blade to the desired angle and move the lever operating mechanism of the planer blade a corresponding distance. The ends of the bar 34 project between the horizontal portions of the truss bars and angle bars 40 secured to the horizontal flanges of said truss bars and have freedom of horizontal movement therein to allow for the convenient adjustment of the planer blade.

To use the machine, the locking pin 39 is adjusted in the proper hole in the band 36 to set the planer blade at the desired angle to the work, and then by moving the levers 30 either end of the planer blade may be raised or lowered, independently of the other end, to adapt the planer blade to the inclination of the ground over which the machine may be moving. Whenever desired, this angle of the planer blade may be varied by removing the locking pin and shifting the bars 14 and 34 to throw either end of the planer blade forward and direct the material to either side of the machine.

The machine may be made in various sizes and in various ways the details of construction herein shown and described may be modified and still be within the scope of my invention.

I claim as my invention:—

1. A road planing machine comprising a pair of forward and a pair of rear runners, a pair of truss bars secured at their forward and rear ends respectively to said runners and forming a rigid connection between the forward and rear runners on the same side of the machine, said truss bars having a substantially horizontal middle portion, the rear ends of said forward runners and the forward ends of said rear runners having means for securing them to the middle portions of said truss bars and cross bars connecting said truss bars, a platform mounted on the raised middle portion of said truss bars, and a scraping mechanism suspended beneath said platform.

2. A road planing machine comprising a pair of forward runners and a pair of rear runners, truss bars having a horizontal mid-

dle portion and downwardly turned ends secured respectively to said forward and rear runners intermediate to the ends thereof, the rear ends of the forward runners and the forward ends of the rear runners having upwardly turned extensions which are secured to the middle portions of said truss bars, and a scraper mechanism interposed between said pairs of runners.

3. A road planing machine comprising forward and rear runners and a raised central portion between them, a planer blade arranged beneath said raised central portion and having draft connections with said forward runners, and a fork having a universal joint connection with the middle portion of said planer blade and extending rearwardly therefrom and having the arms of its fork pivotally connected respectively with said rear runners.

4. In a road planing machine, the combination, with the rear runners, of a planer blade in advance of the same, a fork having a universal joint connection with the middle portion of said planer blade, the arms of said fork extending rearwardly from said blade and having pivotal connections respectively with said runners, said fork allowing the tilting of said planer blade forward or backward and the oscillation of the same in a horizontal plane.

5. A road planing machine comprising a frame having forward and rear runners and a raised central portion, the inner ends of said runners having extensions thereon projecting vertically and secured to said raised central portion, a centrally pivoted bar supported by the extensions of said forward runners, draft bars connected at one end to the ends of said centrally pivoted bar, a scraper blade attached to the opposite ends of said draft bars, and a guiding fork mounted on said rear runners and having a central pivotal connection with said scraper blade.

6. A road planing machine comprising a frame, draft bars mounted therein and having downwardly turned ends, pins mounted in said downwardly turned ends, a planer blade having slotted ears to receive said pins, a fork pivoted on said frame and having a universal joint connection with said planer blade, and means for raising and lowering said planer blade and swinging it horizontally.

7. A road planing machine comprising a frame, draft bars mounted therein and having downwardly turned ends, pins mounted in said downwardly turned ends, a planer blade having slotted ears to receive said pins, said ears allowing the tilting of either end of said blade, and levers mounted on said frame and connected with said draft bars for raising and lowering said blade.

8. A road planing machine comprising a

frame, draft bars pivoted therein and having downwardly turned rear ends, pins mounted in said rear ends and depending parallel, substantially, with said rear ends, 5 the lower portions of said ends having forwardly projecting ears, a planer blade having ears projecting rearwardly therefrom and provided with transverse slots, said pins passing through the ears of said planer blade 10 and said draft bar ends, means pivotally connecting the middle portion of said planer

blade with the rear of said frame, and means for raising and lowering said draft bars independently of one another to tilt said frame on its central pivot. 15

In witness whereof, I have hereunto set my hand this 21st day of December 1912.

ARTHUR O. HUBBARD.

Witnesses:

GENEVIEVE E. SORENSEN,
EDWARD A. PAUL.

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