H. H. THURSTON.

GRADER DRAG PLANE.

APPLICATION FILED SEPT. 5, 1918.

1,303,415.

Patented May 13, 1919.

2 SHEETS—SHEET 1.

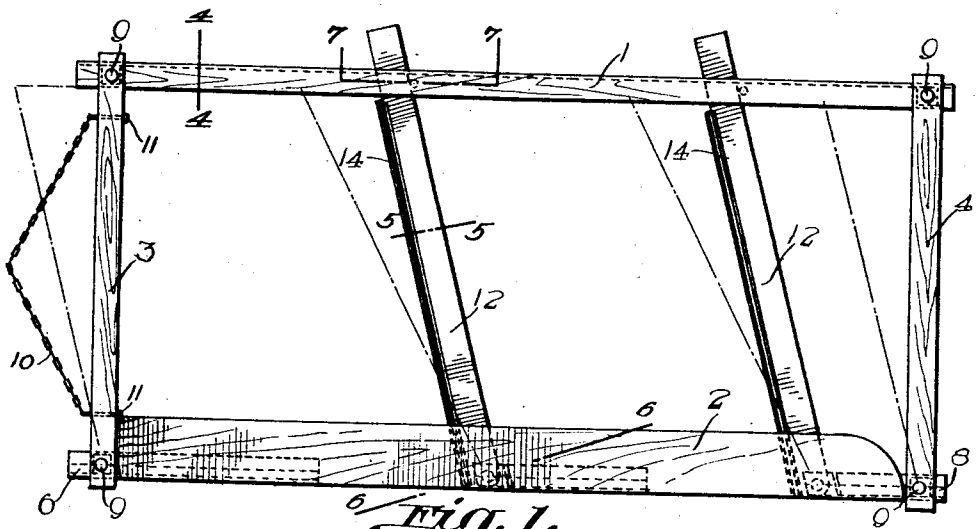


Fig. 1.

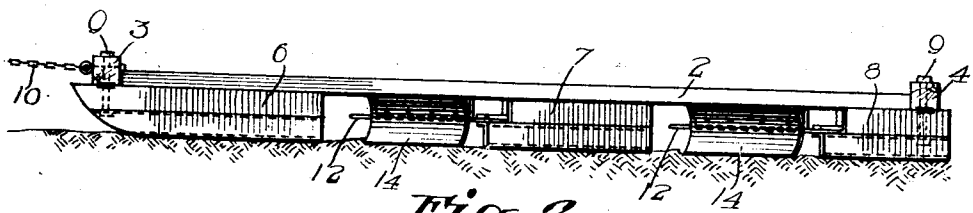


Fig. 2.

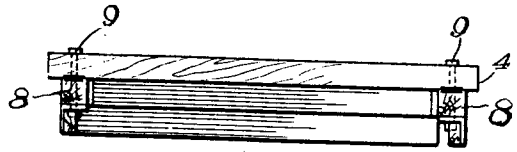


Fig. 3.

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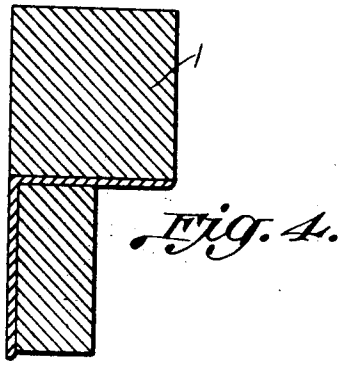


Fig. 4.

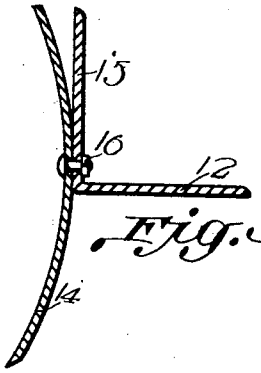


Fig. 5.

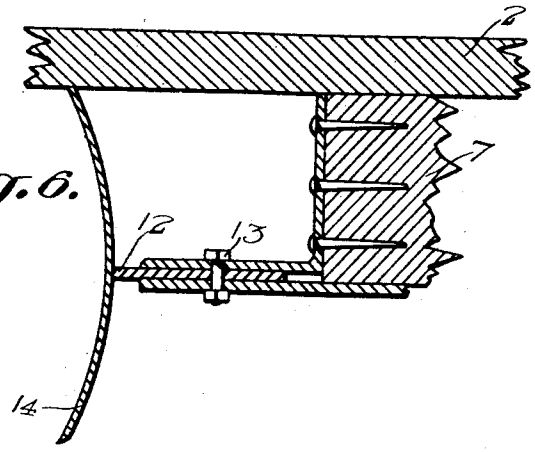


Fig. 6.

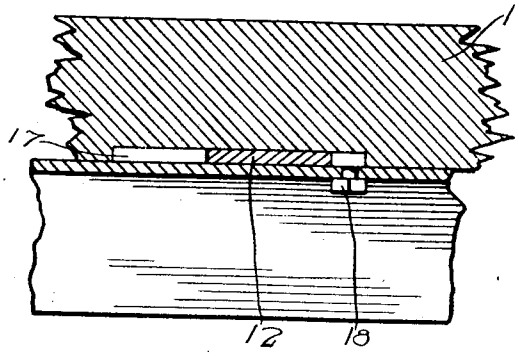


Fig. 7.

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HAROLD H. THURSTON, OF ANOKA, MINNESOTA.

GRADER DRAG-PLANE.

1,303,415. Specification of Letters Patent. Patented May 13, 1919.

Application filed September 5, 1918. Serial No. 252,729.

To all whom it may concern:

Be it known that I, HAROLD H. THURSTON, a citizen of the United States, and a resident of Anoka, in the county of Anoka and State of Minnesota, have invented a new and useful Improvement in Grader Drag-Planes, of which the following is a specification.

My invention is an improvement in grader drag planes, and has for its object to provide a device of the character specified, by means of which a road may be cut or scraped to the proper inclination and the superfluous soil moved to the side wherein the inclination of the blades is varied by shifting the frame, and wherein all wheels, gears, and levers are eliminated.

In the drawings:—

Figure 1 is a top plan view of the improved machine,

Fig. 2 is a side view,

Fig. 3 is an end view looking at the rear, and

Figs. 4, 5, 6, and 7 are sections on the lines 4—4, 5—5, 6—6, and 7—7, respectively of Fig. 1.

In the present embodiment of the invention, a frame is provided consisting of spaced runners or shoes which are connected by cross bars at their ends. The shoe or runner 1 at the right hand of the frame is continuous, while that at the left is sectional consisting of a plate 2 to which the sections are connected.

The sections 6, 7, and 8 of the shoe or runner are spaced apart longitudinally from each other as shown in Fig. 2, and each of the two shoes or runners is composed of a wooden bar having secured to the underface thereof, an angle bar. With the shoe or runner 1, the angle bar is continuous, while with the sections 6, 7, and 8, the angle bar is of approximately the length of the wooden bar.

Referring to Fig. 2, it will be noticed that the angle bars on the runners 7 and 8 are extended forwardly beyond the wooden blocks for a purpose to be later described, and the front lower corner of the runner 1, and of the section 6 of the other runner are rounded off.

The cross bars 3 and 4 are connected to the runner 1 and to the runner sections 6 and 8 by means of bolts and nuts 9, and it will be obvious that by loosening the bolts and nuts the frame may be swung into an askew position to vary the inclination of the blades to be described. After the nuts have been tightened, the frame will be held in this askew position.

A draft chain 10 is connected to the front cross bar 3 by means of the eye bolts 11 at the ends of the chain, and to swing the frame askew the nuts of the bolts 9 are loosened, a draft apparatus is engaged with a link of the chain off center, such that when traction is made on the chain the frame will be swung into the desired askew position.

A plate 12 is pivoted to the extended end of each of the angle bars of the sections 7 and 8 by means of the bolt and nut 13 as shown more particularly in Fig. 6, and a transversely curved blade 14 is connected with each of these plates 12, each of the said plates 12 having upstanding portions 15 to which the blade 14 may be connected by bolts and nuts 16.

At the runner 1 each plate 12 is extended beyond the blade through a notch or recess 17 on the underface of the wooden bar of the runner, and the said end of the plate rests on the angle bar, and is held in position by means of a pin or bolt 18.

In operation, the nuts of the bolts 9 are loosened, and the draft apparatus is engaged with that link of the chain 10 which will put the frame properly askew to obtain the proper inclination of the blades. The nuts are then tightened and the device is ready for operation.

As the soil is cut away by the blades, it will be deflected to the left, through the openings between the sections 6, 7, and 8 of the left hand runner. The shift of the angle of the blades is accomplished entirely by the racking of the frame, no additional mechanism being necessary, so that wheels, gears, and levers are eliminated. Furthermore, the more acute the angle of inclination of the blades, the longer is the supporting frame of the machine.

The upstanding portions 15 of the plates 12 have vertical slots, in which the bolts 16 work, in order that the blades may be properly adjusted to the ground as they wear down. Referring to Fig. 2 it will be noticed that the bars 1, 2, 3, and 4 have coöperating roughened plates at their intersection, which assist to hold the frame askew or in adjusted position. Since the frame is not absolutely rigid, but loose enough to permit a slight wave which serves the purpose of bringing the cutting edges of the blades in contact

with the roadway gaining full length of the cutting edges.

I claim:—

A device of the character specified, comprising a frame consisting of spaced parallel runners, one of the said runners consisting of sections spaced apart longitudinally from each other and rigidly connected, cross bars connecting the ends of the runners, the connection being capable of being loosened, plates pivoted to the front ends of the rear sections of the sectional runner, blades connected with the forward edges of the plates, said plates being detachably connected with the other runner and held at an angle with respect to the long axis of the frame, and a flexible member connected at its ends to the front cross bar near the ends thereof.

HAROLD H. THURSTON.

Witnesses:

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H. A. HARRINGTON.

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