

No. 874,198.

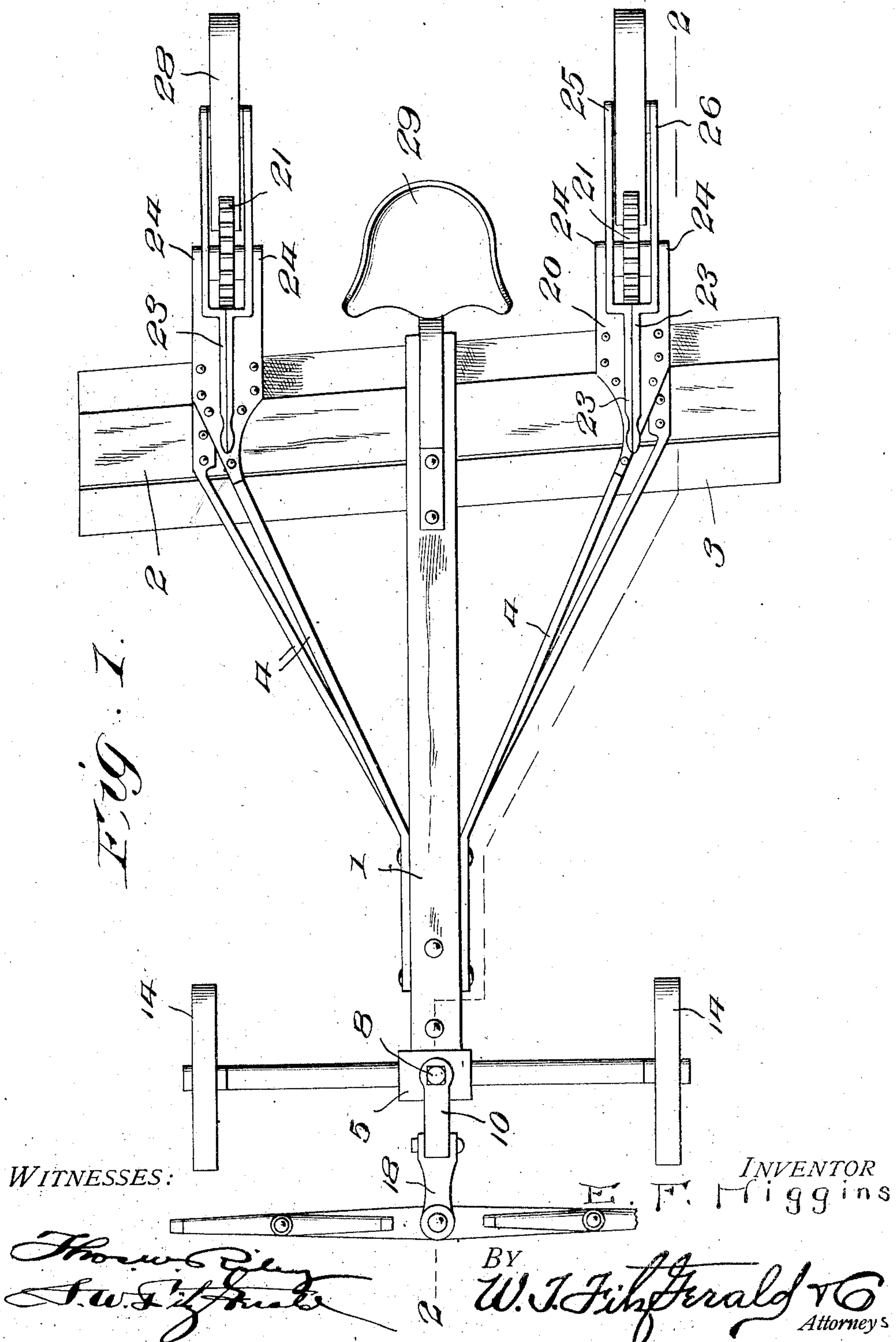
PATENTED DEC. 17, 1907.

E. F. HIGGINS.

GRADER.

APPLICATION FILED OCT. 14, 1907.

3 SHEETS—SHEET 1.



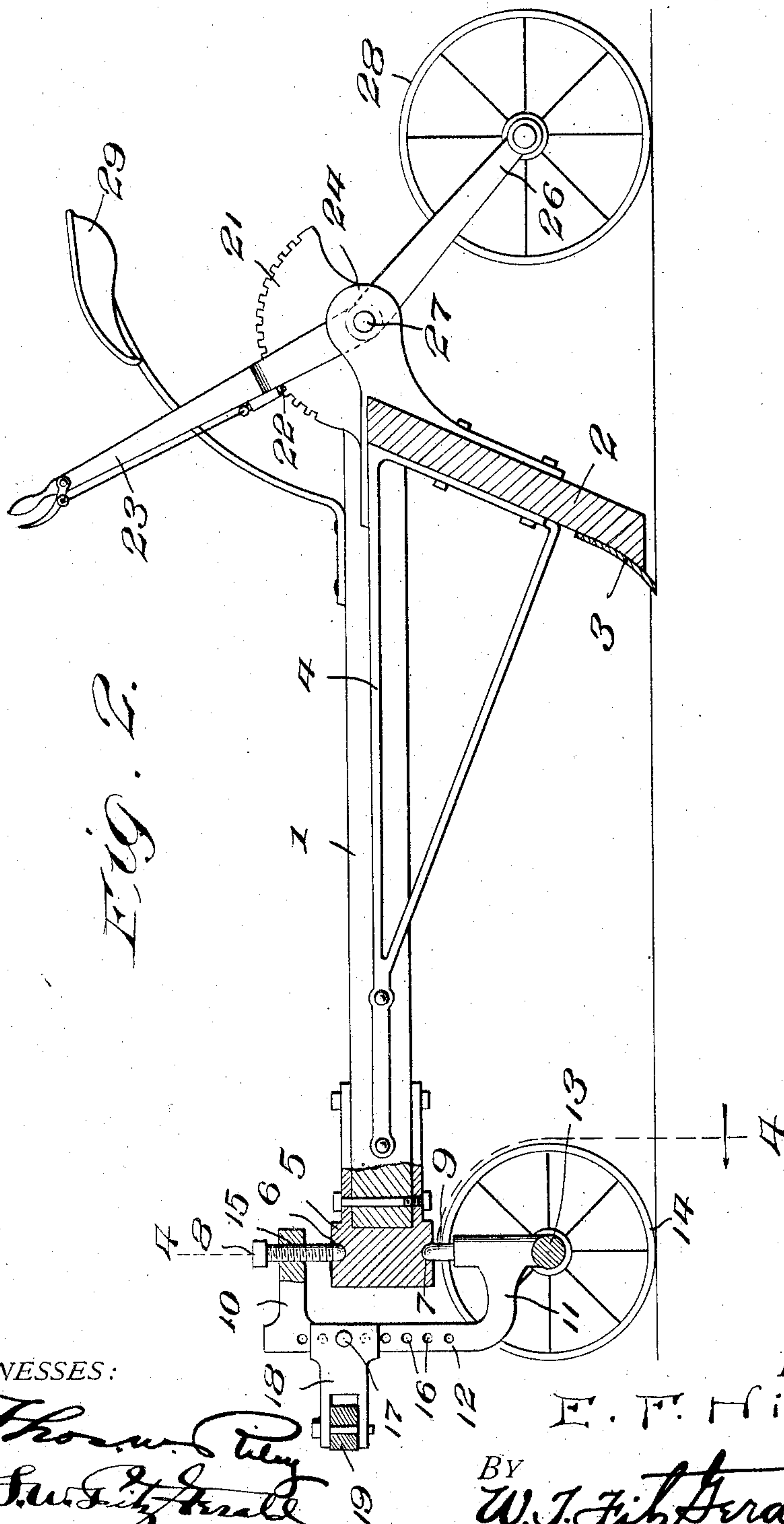
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 3.

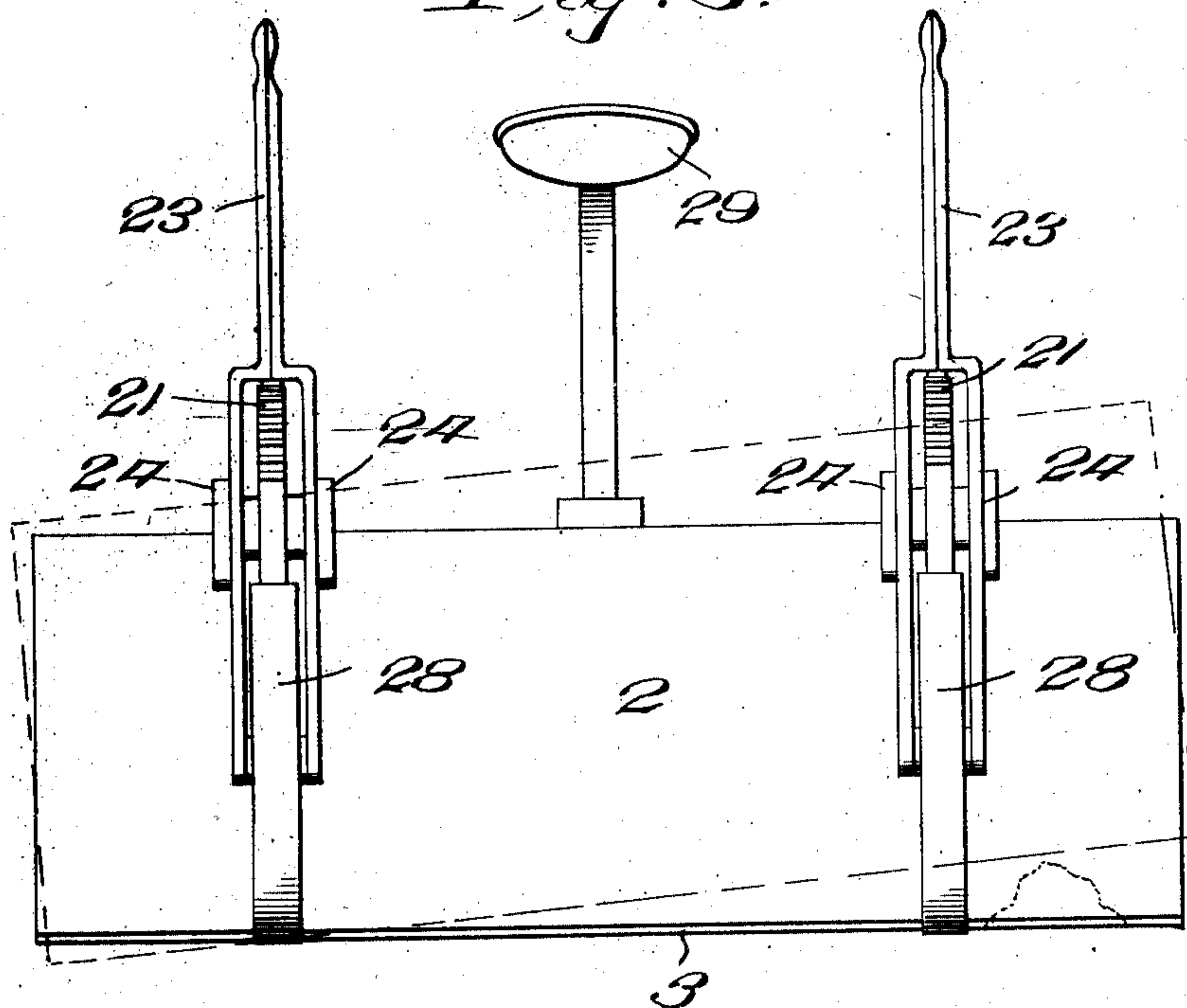
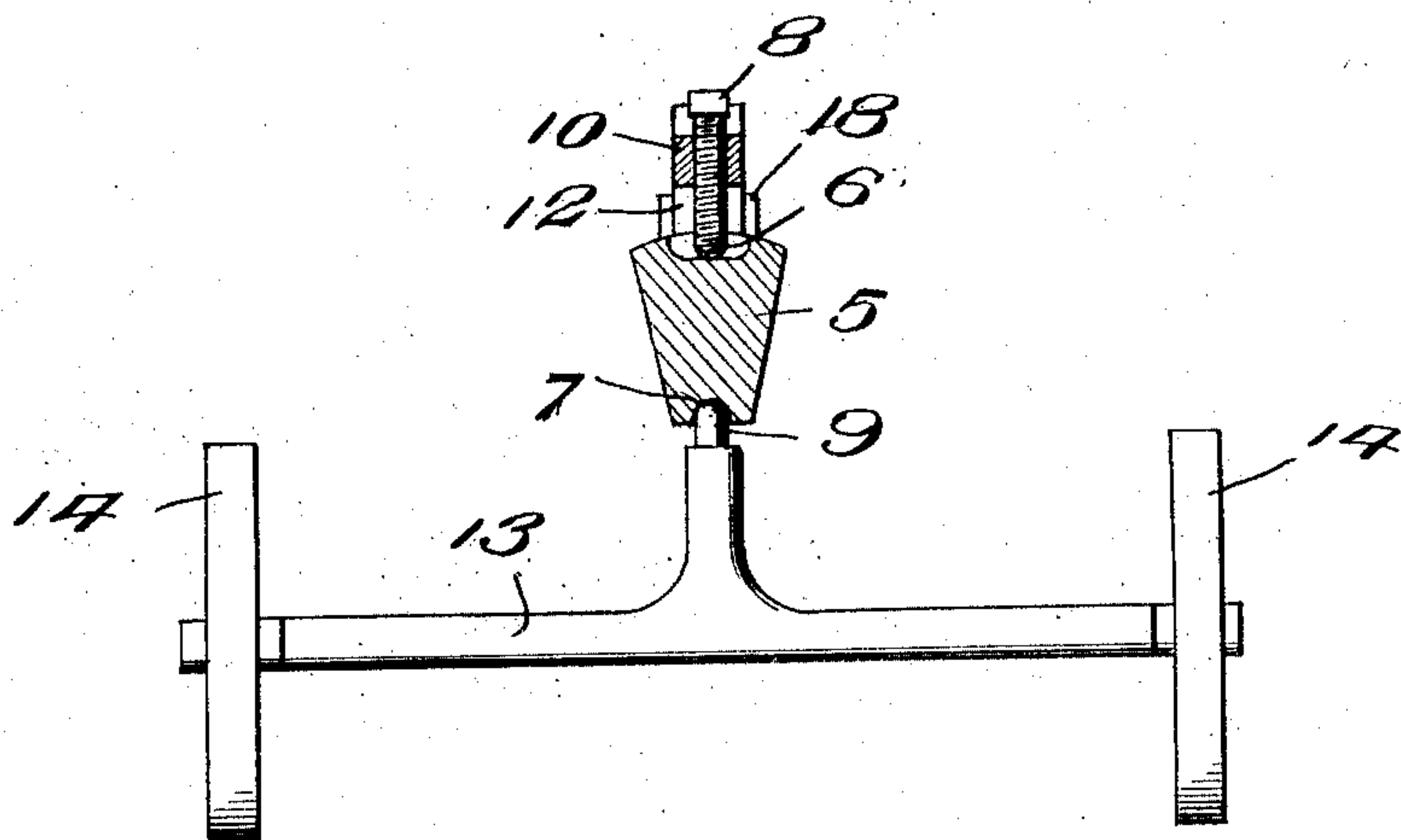


Fig. 4.



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UNITED STATES PATENT OFFICE.

ELMER F. HIGGINS, OF MOUNT VERNON, OHIO.

GRADER.

No. 874,198.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed October 14, 1907. Serial No. 397,415.

To all whom it may concern:

Be it known that I, ELMER F. HIGGINS, a citizen of the United States, residing at Mount Vernon, in the county of Knox and State of Ohio, have invented certain new and useful Improvements in Graders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in graders and more particularly to that class adapted to be used for grading streets and road-ways and my object is to provide a grader of this class, which may be used without employing the usual form of guiding tongue.

A still further object is to provide means for simultaneously or independently raising or lowering the parts of the grader and a still further object is to so construct the frame of the grader that the front trucks thereof may swing below the frame of the grader and allow the grader to be turned in a very small space.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the claims.

In the accompanying drawings which are made a part of this application, Figure 1 is a top plan view of my improved grader. Fig. 2 is a sectional view as seen on line 2—2, Fig. 1. Fig. 3 is a rear elevation of the grader, and Fig. 4 is a sectional view as seen on line 4—4, Fig. 2.

Referring to the drawings, in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the frame of my improved grader, to the rear end of which is secured a beam 2, said beam extending at right angles to the frame 1 and has secured to its lower edge, a blade 3, said blade and beam forming the scraper for the grader.

In order to thoroughly brace the beam and hold the same rigid, brace bars 4 are secured at one end to the forward face of the beam 2 and at their opposite ends to the forward end of the frame 1, the rear portion of the brace bars 4 being bifurcated, so that one arm thereof will extend to a point adjacent the upper edge of the blade 3, while the upper arm thereof is substantially in line with the upper edge of the beam 2.

Secured to the forward end of the frame 1

is a head 5, in the upper and lower ends of which are formed sockets 6 and 7, respectively, in which are adapted to enter the rounded ends of an adjusting bolt and pivot pin 8 and 9, respectively, said bolt and pin being carried by the arms 10 and 11 of a guide bar 12, said guide bar resting in a vertical position.

Secured to the lower edge of the arm 11 is a horizontally disposed axle 13, to the opposite ends of which are secured guide wheels 14, by which means the forward end of the frame 1 is supported, said axle being directly below the longitudinal axis of the pivot pin, so that the weight of the frame will be directed over the center of the axle.

The adjusting bolt 8 is threaded through an opening 15 in the arm 10, so that when the pivoting parts of the grader become worn, the adjusting bolt may be lowered to compensate for such wear and the socket 6, as best shown in Fig. 4, is oblong, so that the frame 1 may be tilted from side to side when the ends of the beam 2 are raised independently.

The guide bar 12 is provided with a plurality of openings 16, with which is adapted to cooperate a pin 17, carried by a clevis 18, said clevis being adapted to receive the usual form of double tree 19, to which may be secured draft animals to propel the grader and by providing the plurality of openings 16, it will be seen that the clevis and double trees carried thereby may be readily adjusted upwardly or downwardly, when desired.

In order to raise the beam 2 bodily or elevate one end thereof, so that the blade 3 may pass over an object, a plate 20 is secured adjacent each end of the beam 2 and preferably at the upper edge thereof, one portion of the plate extending over the upper edge of the beam, while the opposite portion thereof engages the rear face of the blade, said plate being secured to the beam in any preferred manner.

Extending upwardly from the plate 20 is a rack bar 21, with which is adapted to engage a spring-operated latch 22, carried by a lever 23. The plate 20 is also provided with ears 24, one at each side of the rack bar 21, between which are pivotally mounted the bifurcated ends 25 and 26 of the lever 23, the pivot pin 27 extending through the ears 24, rack bar 21 and interposed portions of the ends 25 and 26, so that when the lever 23 is moved back and forth over the rack bar 21,

the lower ends of the end sections 25 and 26 will be moved towards or from the beam 2 and as the bifurcated ends of the lever 23 have wheels 28 rotatably mounted between their extreme lower ends, the beam 2 will be raised when the lever is moved rearwardly and correspondingly lowered when the lever is moved forwardly and by providing the rack bar 21 and cooperating latch 22, it will be seen that said beam may be readily held in its adjusted position.

In order to place the levers 23 readily accessible to the operator, a seat 29 is secured adjacent the rear end of the frame 1, which is midway between the levers 23, adjacent the ends of the beam 2, so that when the operator is occupying the seat, either or both of the levers may be readily grasped and operated.

In operation, both of the levers are moved forwardly, thereby lowering the blade 3 in engagement with the earth's surface, so that when the grader is moved forward, a certain portion of the soil will be loosened by the blade and carried to a given point.

Should a stone or other object be encountered adjacent one end of the blade, the lever adjacent that end of the blade, is moved rearwardly, which will elevate that end of the beam 2, until the blade 3 is of sufficient height to pass over the object, when the lever so operated is again returned to its forward position and the blade lowered and, likewise, when the grader is not in use, but is being moved from place to place, both of the levers are moved rearwardly, which will result in elevating the blade from engagement with the earth's surface.

When one end of the beam 2 is raised, a twisting movement is imparted to the frame 1, so that the adjusting bolt 8 will move to one end of the socket 6, thereby permitting the axle 13 to always rest in its horizontal position and by constructing the wheels 14 in the manner shown, it will be seen that said wheels will readily pass below the frame 1 and permit the grader to be turned in a very small space.

What I claim is:

1. In a grader of the class described, the combination with a frame; of a beam at one end of said frame, a blade at the lower edge of said beam, bracing means interposed between said beam and frame, plates secured to said beam, adjacent each end thereof, a rack bar carried by said plates, ears on said plates

and spaced from said rack, levers having bifurcated ends pivotally secured between said ears, wheels rotatably mounted between said bifurcated ends, said wheels being adapted to engage the earth's surface, whereby when the levers are moved over the rack bars, the beam will be correspondingly raised or lowered, a latch on said levers, adapted to cooperate with said rack bars and means to support the forward end of the frame.

2. In a grader of the class described, the combination with a frame, having a beam at one end thereof and means to raise and lower said beam; of a head at the opposite end of the frame, said head having sockets therein, a guide bar, arms at the upper and lower ends of said guide bar, a pivot pin carried by the lower arm, adapted to enter the socket in the lower end of the head, a bolt adjustably secured to the upper arm and adapted to enter the socket at the upper end of the head, said socket being elongated, an axle on the lower arm and below the pivot pin, wheels on said axle and means to attach draft animals to said bar, whereby the grader will be propelled and guided.

3. In a grader of the class described, the combination with a frame; of a beam at one end of said frame, bracing means between said frame and beam, plates carried by said beam, rack bars on said plates, levers pivotally secured to said rack bars, said levers having bifurcated lower ends, wheels rotatably mounted between said bifurcated ends, means carried by the levers adapted to engage the rack bars and hold the beam in its adjusted position, a head at the forward end of said frame, having sockets therein, a guide bar, arms at the upper and lower ends of said guide bar, a pivot pin in the lower arm, adapted to enter one of the sockets in the head, a bolt adjustably secured to the upper arm and adapted to engage the socket at the upper end of the head, said socket being elongated, an axle carried by the lower arm, supporting wheels for said axle and means to attach draft animals to the guide bar.

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

ELMER F. HIGGINS.

Witnesses:

L. W. SPEELMAN,
H. P. ROBISON.