J. W. BRANNAN.

ROAD DRAG OR GRADING MACHINE.

APPLICATION FILED MAR. 16, 1921.

1,428,319.

Patented Sept. 5, 1922.

2 SHEETS—SHEET 1.

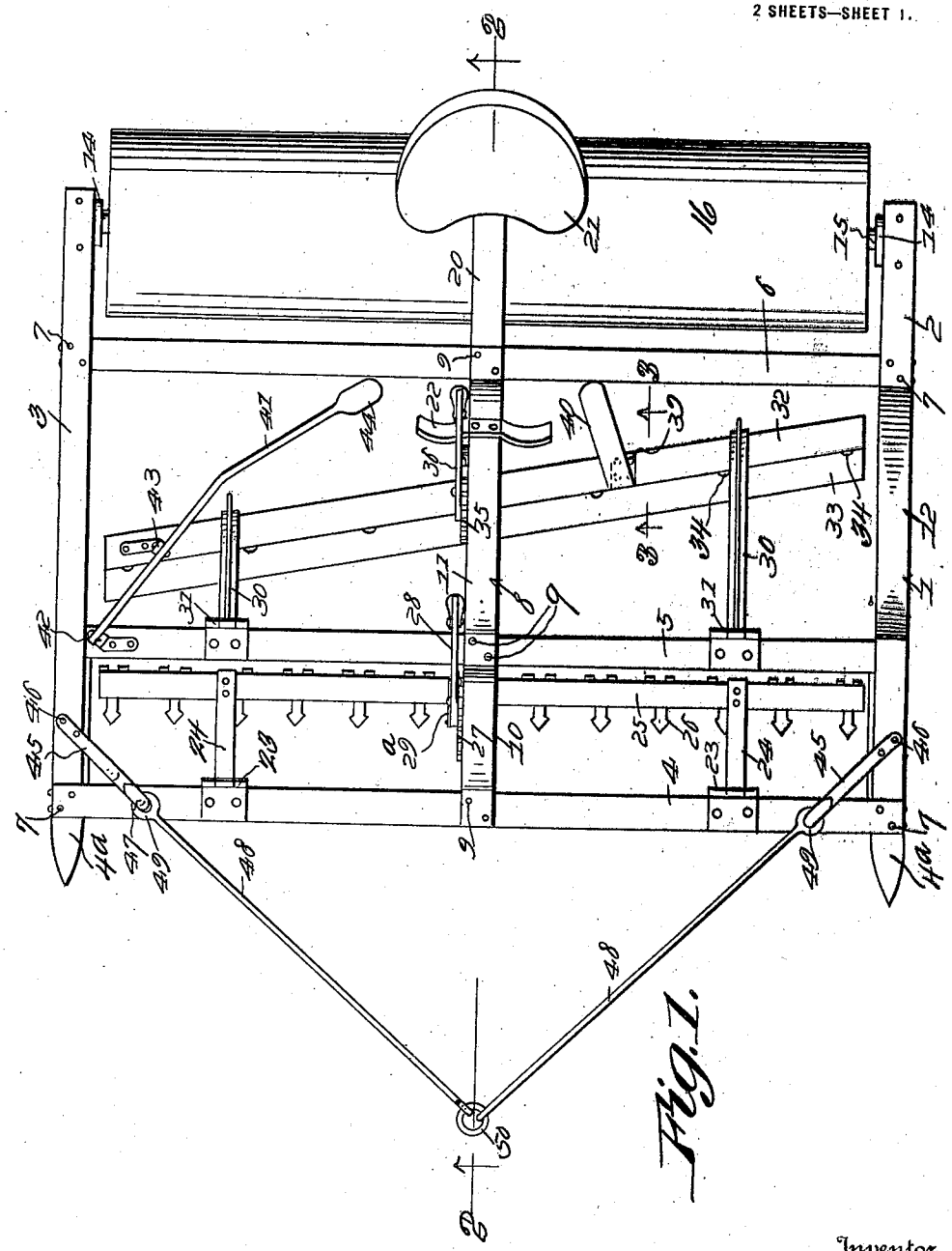


Fig. 1.

Inventor

J. W. Brannan,

By Watson E. Coleman

Attorney

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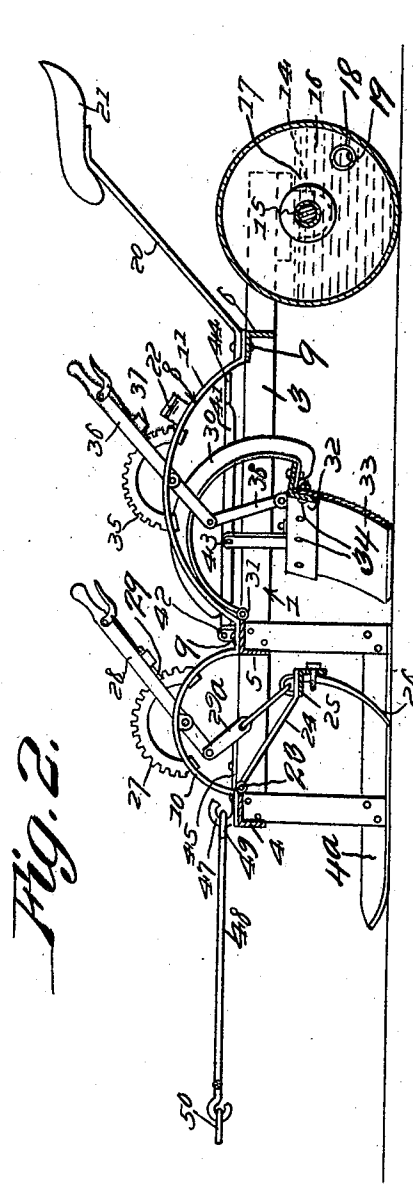


Fig. 2.

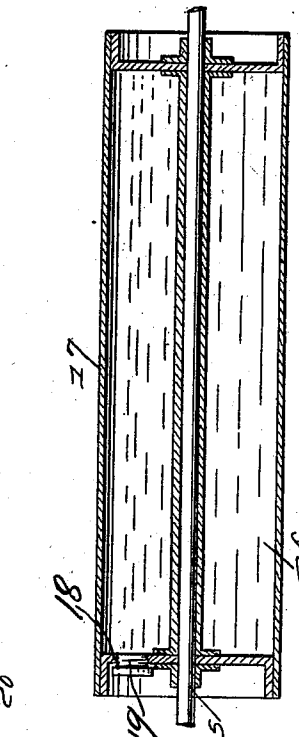


Fig. 4.

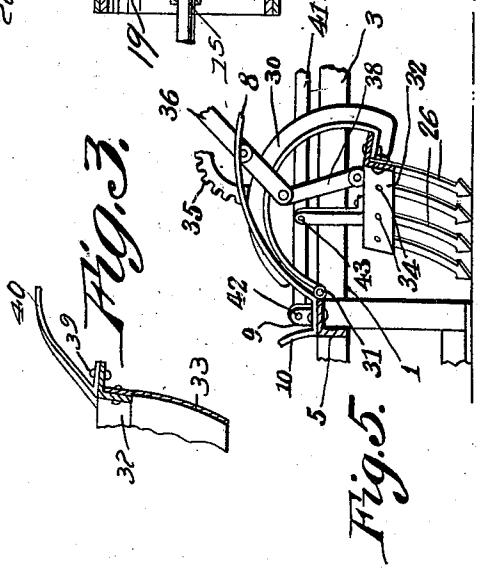


Fig. 3.

Fig. 5.

Inventor

J. W. Brannan,

By Watson E. Coleman

Attorney

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UNITED STATES PATENT OFFICE.

JOHN W. BRANNAN, OF GRAND ISLAND, NEBRASKA.

ROAD DRAG OR GRADING MACHINE.

Application filed March 16, 1921. Serial No. 452,687.

To all whom it may concern:

Be it known that I, JOHN W. BRANNAN, a citizen of the United States, residing at Grand Island, in the county of Hall and State of Nebraska, have invented certain new and useful Improvements in Road Drag or Grading Machines, of which the following is a specification, reference being had to the accompanying drawings.

It is the purpose of the present invention to provide a machine of this character involving means for not only loosening up the high places and the ruts, but also for eliminating them, grading the road and rolling, leveling and flattening the same.

Another purpose consists in the provision of a hollow roller following the grading and leveling means of the machine, for not only flattening the road, but also for packing the earth, to insure a solid bed, it being the object to fill the roller with fluid, such as water or the like, to give it weight when in use, and when not in use, the water may be emptied, thereby not only facilitating transportation in shipment, but also facilitating the loading and unloading of the same on trucks or wagons, when the machine is being transmitted from one place to another.

Still another purpose is the provision of means on the grading blade on either end thereof, in order to hold the blade manually to its work, to insure evenly and uniformly grading the road bed.

It is a further purpose to provide means for raising the grading or leveling blade, the object being to permit the dirt graded from one place or another to be dropped in lower places, thereby uniformly grading the bed.

A still further purpose consists in a harrow device including teeth, for loosening up the high places in the roads, in combination with means for raising the harrowing device, for uniformly controlling the action of the same.

While the design and construction at present illustrated and set forth is deemed preferable, it is obvious that as a result of a reduction of the invention to a more practical form for commercial purposes, the invention may be susceptible of changes, and the right to these changes is claimed, provided they are comprehended within the scope of what is claimed.

The invention comprises further features and combination of parts, as will be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a plan view of the improved road grading machine constructed in accordance with the invention.

Figure 2 is a vertical sectional view on line 2—2 of Figure 1, showing the grading blade and the harrowing device in use.

Figure 3 is a detail view of the foot pedal 40 as applied to the grading blade supporting bar 32.

Figure 4 is a longitudinal sectional view through the roller.

Figure 5 is an enlarged detail view of an implement carrying bar showing a set of harrow teeth mounted upon the bar.

Referring to the drawings, 1 designates a frame which may be any suitable shape or configuration, preferably as shown, and constructed of any suitable material preferably angle irons or bars, therefore the frame comprises the side angle irons or bars 2 and 3, which are connected by the transversely arranged forward and rear and intermediate angle irons or bars 4, 5 and 6. The connections between these bars are made by rivets, bolts or the like 7. The frame also includes a metallic strap 8 preferably of steel, connecting the transversely arranged angle irons or bars 5 and 6 as at 9.

The forward portion of the metallic strap adjacent the bar or angle iron 4 is provided with an arched portion 10. The metallic strap 8 at the central portion between the angle irons or bars 5 and 6 and the side angle iron or bar 2 at corresponding parts have arches 11 and 12, and the arches of the strap 8 and the angle iron or bar 2 are for the purpose of permitting free passage of the dirt and the like to one side of the machine.

This frame at its rear end is provided with boxings or bearings 14, for the reception of the journals 15 of the hollow roller 16, which travels in the rear of the road grading blade. The hollow roller is designed for the purpose of facilitating the transportation of the machine in shipment, and to permit the roller to be easily loaded and unloaded upon a truck or wagon, for transmitting the machine in parts, from one place to another. The roller is also adapted to receive a requisite amount of liquid such

as water or the like, as indicated at 17, for the purpose of adding weight thereto and to enable the road to be flattened and packed. One end of the roller has a filling opening 18, receiving a plug 19, for permitting the fluid to be poured thereinto.

The forward ends of the side angle irons or bars 2 and 3 are mounted upon skids, which support the front of the frame, and constitute gauges for setting the depth of the harrow and grading blade. In other words the skids 4ª act to hold the frame a requisite distance above the surface of the road bed, in order to permit of various adjustments of the harrow and grading blade.

A suitable spring bar 20 is mounted upon the central metallic strap, or may be formed a part thereof, and has on its rear end an operator's seat 21. Secured upon the arch 11 of the central metallic strap 8 is a suitable foot rest 22 for the operator.

Connected to the forward angle iron or bar by means of hinges 23 are metallic straps 24 preferably of steel, which are in turn connected to a harrow bar 25, upon which harrow teeth 26 are mounted. A segment rack 27 is mounted upon the forward portion of the metallic strap 8, there being a lever 28 having operative connections 29ª with the bar 25, for raising and lowering the same relatively to the road bed. The harrow teeth are employed for the purpose of loosening up the high places, ruts and the like in the road bed, in order to permit the grading blade to remove the dirt and the like, after the high places and ruts and clods are broken. The lever 28 carries the usual hand grip operated dog 29, for holding the lever 28 in different adjusted positions.

Preferably arched T-bars 30 are connected to the intermediate transverse angle iron or bar 5, by means of suitable hinges 31. As previously stated the bars 30 are arched, rearwardly and downwardly, and connected to their lower portions is an angle iron or bar 32, to which the road grading blade 33 is connected, either by bolts, rivets or the like 34. If bolts are used for connecting the blade to the bar 32, then it is obvious that the road grading blade may be easily and quickly detached, for renewal, or for repairs. It will be noted that the bar 32 and its blade are disposed on an incline transversely of the frame, so as to deflect the dirt and the like to one side of the machine, as the machine travels over the road bed. The angle iron or bar 32 constitutes means for mounting and reinforcing the road grading blade. A segment rack 35 is mounted upon the central metallic strap 8, and also pivoted to the strap is a lever 36. The lever is provided with a hand grip operated dog 37, and is also operatively connected to the angle iron or bar 32 by means of the connection 38, so that the angle iron or bar 32 and its blade may be raised and lowered relatively to the road bed, for properly grading the surface.

Secured upon the angle iron or bar 32 as at 39 is a foot pedal 40, upon which foot pressure by the operator may be applied, to facilitate cutting the hard spots and high places of the road bed. In other words should one side of the road bed have hard portions or high places which are not touched, or only partially so by the harrow teeth, then the operator may apply pressure upon the left hand side of the road grading blade, to insure cutting away the hard portions and insure leveling the surface of the road.

A second foot pedal 41 is hingedly mounted at 42 to the intermediate angle iron or bar 5, and in turn hingedly or pivotally connected at 43 to the angle iron or bar 32 (which carries the road grading blade 33), and has its foot engaging portion 44 disposed in close position to the operator's seat, whereby it may be reached by the foot of the operator. Foot pressure may be applied upon the pedal 41, for the same purpose as for applying pressure upon the pedal 40. Mainly for forcing the cutting edge of the road grading blade toward and upon the surface of the road, to insure cutting and removing the hard spots, and raised portions of the surface of the road.

Suitable draft bars 45 are secured at 46 to the forward ends of the side angle irons or bars 2 and 3, and terminate in hooks 47 at their forward ends. Draft rods 48 are connected to the hooks 47 by means of the eyes 49. The draft rods 48 converge toward each other, and their adjacent ends, which have eyes, are connected by means of a clevis ring 50, to which any suitable draft equalizer (not shown) may be connected, for drawing the machine over the surface of the road.

It is possible to remove the road grading blade 33, and in its stead apply another set of harrow teeth consisting of any number of teeth alternately arranged with the first row of harrow teeth, the roller being left in place, therefore in this case the machine may be used as a harrower and roller combined for harrowing a field and packing the seed bed, as well as for road grading or drag work. When the blade is disposed with and an extra number of teeth are used, the field may be harrowed and the seed bed packed.

The invention having been set forth, what is claimed as being useful is:

1. In a machine for the purpose indicated, a frame, a bar carrying a ground engaging implement, a plurality of bars hingedly connected to the frame forwardly of the implement carrying bar and being arcuate and terminating in forwardly extending parts at their rear ends, which are connected rigidly to the implement carrying bar, an ele-

vated support on the frame, a lever operatively mounted upon the support and in turn linked to the implement carrying bar, whereby it may be raised and lowered to assist in regulating one end of the implement carrying bar relatively to the ground, means for holding the lever in different adjusted positions, a foot actuated bar pivoted to the frame forwardly of the implement carrying bar and having a link connection with the other end of the implement carrying bar, for regulating the depth of the implements in the ground, the construction and arrangement of the rigid connection between the implement carrying bar and the forwardly extending extremities of the arcuate bars being such as to vary the angle of the implements relatively to the ground when said implement carrying bar is raised and lowered.

2. In a road drag or grading machine, the combination with a frame having an elevated arched support, an implement carrying bar disposed on an angle from one side of the frame toward the other, a plurality of bars hingedly connected to the frame forwardly of the implement carrying bar, a mechanism mounted upon the elevated support and operatively connected to the implement carrying bar for raising and lowering the same, said mechanism including means for holding the mechanism in different positions, a foot actuated device mounted on the frame and connected to said implement carrying bar for regulating the depth of the implements into the ground, said plurality of hinged bars being arched, whereby the material of the roadway in front of the implement may travel toward and discharge at one side of the machine.

In testimony whereof I hereunto affix my signature.

JOHN W. BRANNAN.