No. 851,713. PATENTED APR. 30, 1907.

D. M. TRABUE.

ROAD WORKING MACHINE.

APPLICATION FILED DEC. 24, 1906.

Fig. 1.

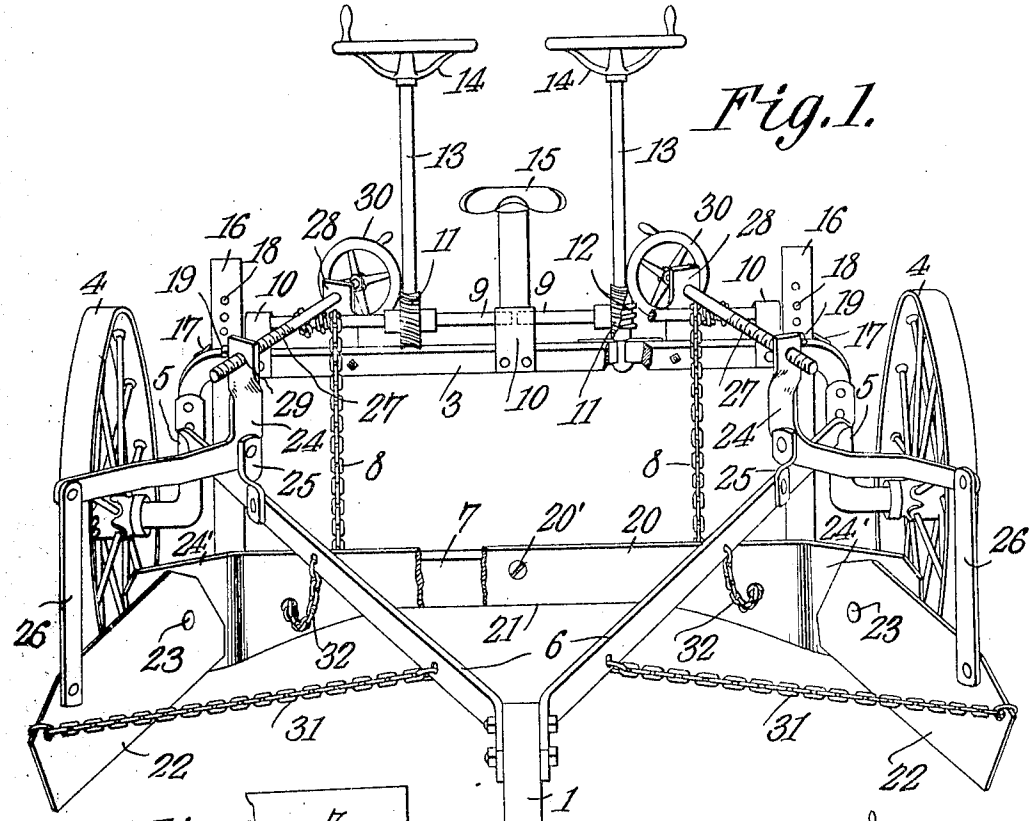


Fig. 4.

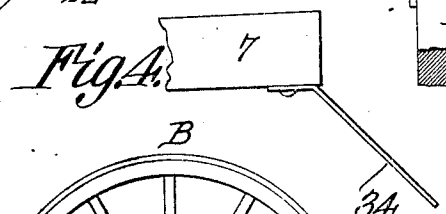
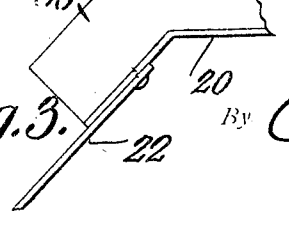


Fig. 2.

Fig. 3.



WITNESSES:

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DAVID M. TRABUE, OF MAYS, INDIANA

ROAD-WORKING MACHINE.

No. 851,713. Specification of Letters Patent. Patented April 30, 1907.

Application filed December 24, 1906. Serial No. 349,320.

To all whom it may concern:

Be it known that I, DAVID M. TRABUE, a citizen of the United States, residing at Mays, in the county of Rush and State of Indiana, have invented a new and useful Road-Working Machine, of which the following is a specification.

This invention relates to road working machines and it relates more particularly to a gravel spreader and leveler of that type disclosed in my pending application, Serial No. 330,605, filed August 14, 1906.

The invention has for one of its objects to improve and simplify the construction and operation of machines of this character so as to be capable of doing a large variety of work and adapted to be manipulated with facility.

A further object of the invention is to provide an improved blade whereby the operations of scraping, spreading and grading the entire surface of a road can be accomplished by passing over the road in only one direction, thereby producing a one way machine in distinction to the ordinary two way machines by which the road is worked on one side by a machine passing in one direction and then the other side worked by the machine passing in the other direction.

Another object of the invention is the provision of a machine which can be readily adapted for operating on old roads or in spreading, grading or leveling the material for new roads, and at the same time compacting the loose material so that the passing of the machine over the road produces a smooth and finished surface in one operation.

A still further object is the employment of a blade made of sections and mounted on the leveler or other suitable part of the machine with mechanism for raising or lowering the blade and for adjusting the sections of the blade according to the character of the work to be done.

Another object is to provide a road working machine of the character referred to which is equipped with an operator's seat arranged so as to permit the operator to conveniently manipulate the operating mechanisms, in connection with a fore-carriage to which the machine is coupled and an additional forward seat provided for the driver.

With these objects in view, and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates certain of the embodiments of the invention, Figure 1 is a front perspective view of the machine. Fig. 2 is a side elevation thereof. Figs. 3 and 4 are fragmentary detail views of the leveler and adjustable blade extensions showing modified constructions.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawing, and more particularly to Fig. 2, A designates the road working machine having front wheels B of ordinary construction and provided with the usual draft device C. The machine A is provided with a tongue or reach 1 which is connected to the forward part of the machine in any suitable manner, and mounted on the reach or any other suitable part is a driver's seat 2. By providing a seat on the reach the machine can be used with front wheels that may be temporarily detached from a road wagon for the purpose, or if desired the front wheels may be a permanent part of the machine.

The machine A comprises an arched axle 3 on the ends of which are the wheels 4 and connected with the vertical portions 5 of the axle are the members 6 to which the rear end of the tongue 1 is connected. The leveler 7 is suspended between the wheels 4 by means of the flexible elements or chains 8, the upper ends of which are attached to the divided shaft 9 supported on the axle 3 by bearings 10. The two parts of the shaft 9 are adapted to be independently rotated so that the chains 8 can be wound or unwound in order to raise or lower the leveler 7 to vary the degree of compacting or compressing of the material of the road as the machine passes thereover, and also to lift the leveler to a suitable height when the machine is transported from place to place, so as to be out of the way of obstructions on the surface or road over which the machine is traveling. The parts of the divided shaft 9 are separately actuated by worm wheels 11 meshing with worms 12 on the upright shafts or posts 13 suitably supported on the axle 3, and on the upper end of the posts 13 are hand wheels 14. The posts 13 are located on op-

posite sides of the middle of the machine and disposed between them and slightly at the rear thereof is the operator's seat 15 mounted on the axle 3. By arranging the parts in this manner, the operator can actuate the hand wheels 14 by the right and left hands to move the leveler bodily by turning both wheels 14 simultaneously, or to tilt the latter by turning only one of the wheels. The worm gearings between the posts 13 and shafts 9 serve as locks for holding the leveler in any adjusted position. To guide the movement of the leveler the same is provided with an upright 16 adjacent each end which is movable along the rear side of the axle 3 and held in place by the plates 17. The upper end of the uprights are provided with a plurality of apertures 18 for receiving the pins 19 that serve as stops engaging on the top side of the axle to limit the downward movement of the leveler. The leveler 7, which is preferably a ponderous body made of any suitable material and is arranged with its length transverse to the direction of travel of the machine, has its under surface suitably shaped to give to the road-bed the proper finish and contour, the weight and shape of the leveler being such as to tightly compress the material of which the road is made. The leveler also serves as a support for spreading, scraping or grading blades, which may be of any desired construction. These blades, of which one form is shown herewith, are secured to the front side of the leveler by means of suitable fasteners, such as one or more screw bolts 20'. The lower edge 21 of the blade is shaped according to the requirements of the work to be done. On the ends of the blade 20 are arranged extensions 22 which are used in the operation of scraping and grading old roads, so as to put them in good condition. These terminal sections 22 of the blade are pivotally connected at 23 to the forwardly and outwardly bent extremities 24' of the blade 20. The sections 22 diverge in a forward direction and serve to convey the loose material scraped up from the sloping sides of the road inwardly and rearwardly, so that the blade 20 will distribute the loose material for it to be acted upon by the leveler, thereby giving the proper crown or slope to the road. The blade extensions 22 are each provided with an adjusting means whereby the depth of cut or penetration of the extensions can be governed. Each adjusting means comprises a bell crank lever 24 fulcrumed at its elbow on a bracket 25 arranged on each member 6, and attached to the outer end of the forwardly extending arm of the lever is a link 26 that is connected at its lower end with the blade extension 22 at one side of the machine. The lever 24 is actuated by a screw 27 journaled in the bracket 28 on the axle 3 and threaded in a tapped opening 29 at the upper end of the upwardly extending arm of the lever. The screw 27 is provided with a hand wheel 30 at its rear end so as to be within convenient reach of the operator from the seat 15. The adjusting means for the blade extensions are arranged on opposite sides of the middle of the machine so that they can be separately actuated by both hands at a time. In order to prevent the blade extensions from spreading apart, they are held in proper position by means of chains 31 each extending from the outer end of one extension 22 to the adjacent brace member 6 of the tongue 1. These chains permit the blade extensions to be adjusted about their pivots without interference and brace the same with respect to the tongue in all positions of adjustment. The ends of the leveler are connected with the members 6 by chains 32 which serve to hold the leveler in proper relation against undue strains.

The leveler 7 may be straight throughout its length according to the construction shown in my pending application hereinbefore referred to, or it may have its ends bent forwardly, as indicated at 33 in Fig. 3, and the blade 20 may be shaped to fit on the front side thereof. The blade extension may either be attached to the ends of the blades 20, as shown in Figs. 1 and 3, or the blade may be dispensed with and the extensions 34 pivoted directly to the leveler 7, as shown in Fig. 4. It will thus be seen that various modifications in the form of the leveler and blades may be employed to suit the requirements of different classes of work.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily appreciated by those skilled in the art to which the invention appertains, and, while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that various changes may be made, when desired, as are within the scope of the claims appended hereto.

What is claimed is:—

1. In a road working machine, the combination with a supporting structure, of a vertically adjustable device hung from the frame of such structure and extending transversely to the direction of travel of the machine, and forwardly diverging blades arranged at the ends of such device and adjustable independently thereof.

2. In a road working machine, the combination of a supporting structure, a device mounted thereon for operating on the surface of the road, forwardly diverging blades arranged at the ends of the device and coöper-

ating therewith to finish the surface of the road, and means for independently adjusting the said blades.

3. In a road working machine, the combination of a supporting structure, a device adjustably mounted thereon for operating on the surface of the road, forwardly diverging blades arranged at the ends of the device and pivoted on horizontal axes, and means for adjusting the blades about their pivots.

4. In a road working machine, the combination of a supporting structure, a device extending transversely to the direction of travel of the machine and shaped at its bottom to correspond to the finished contour of the road; and forwardly extending blades adjustably mounted at the ends of the said device.

5. In a road working machine, the combination of a supporting structure, a device mounted thereon to operate on the surface of the road, a blade pivoted to the said device, means on the supporting structure for adjusting the blade, and means connected with the free end of the blade for bracing the same.

6. In a road working machine, the combination of a supporting structure, a draft arrangement including a tongue, a device mounted on the structure for operating on the surface of the road, adjustable blades on the extremities of the device, means on the supporting structure for adjusting the blades, and flexible elements between the draft arrangement and blades for bracing the latter.

7. In a road working machine, the combination of a supporting structure, a device mounted thereon, a two-part shaft on the supporting structure, and a flexible element between the said device and each part of the shaft and arranged to wind and unwind around the latter to adjust the position of the device.

8. In a road working machine, the combination of a supporting structure, a device extending transversely to the direction of travel of the machine, a two-part shaft on the structure, flexible elements between the device and each part of the shaft for winding and unwinding around the latter, and means for rotating the parts of the shaft, said means including a worm gear.

9. In a road working machine, the combination of an axle, wheels thereon, a device for operating on the surface of the road, a shaft mounted on the axle, a flexible element adapted to wind around the shaft and connected with the device, an operating shaft mounted on the axle, means for turning the latter shaft, and a worm gear between the shafts for transmitting motion from the operating shaft to the other and for preventing the said element from unwinding under the weight of the device.

10. In a road working machine, the combination of a supporting structure, a device for operating on the surface of the road, uprights on the device and guided by the structure, means for raising and lowering the device with respect to the structure, and stops on the uprights for limiting the downward movement of the device.

11. In a road working machine, the combination of a supporting structure, a device for operating on the surface of the road, means for adjustably supporting the device on the structure, a blade mounted on each end of the device, and a mechanism for adjusting each blade, said mechanism including an operating screw.

12. In a road working machine, the combination of a supporting structure, a device for operating on the surface of the road, means for adjustably supporting the device on the structure, blades mounted at the ends of the device, and separate actuating mechanisms for the blades, each mechanism comprising a bell crank lever linked to the adjacent blade and fulcrumed on the supporting structure, and means for actuating the levers.

13. In a road working machine, the combination of an axle, wheels thereon, a draft arrangement connected with the axle, a device arranged below the axle and extending transversely to the direction of travel of the machine for operating on the surface of the road, blades on the ends of the device coöperating therewith for producing a finished surface of the road by movement of the machine in one direction, bell crank levers fulcrumed on the draft arrangement, links between the levers and adjacent blades, flexible elements connecting the blades to the draft arrangement, and independent operating screws for actuating the levers.

14. In a road working machine, the combination of an axle, wheels thereon, a draft arrangement connected with the axle, a device arranged below the axle and extending transversely to the direction of travel for operating on the surface of the road, a two-part shaft mounted on the axle, flexible elements adapted to wind around the parts of the shaft and connected with the said device, a pair of operating shafts, gears between the operating shafts and parts of the first mentioned shaft, means mounted on the said device and cooperating therewith for operating on the surface of the road, separate mechanisms for adjusting the said means, and an operator's seat arranged on the axle in a position to permit the operator to actuate the operating shafts and said mechanisms.

15. In a road working machine, the combination of a supporting structure, a leveler mounted thereon, and a scraping and grading device associated with the leveler and composed of adjustable parts.

16. In a road working machine, the combi-

nation of a supporting structure, a device arranged thereon and having forwardly diverging portions constructed to slope both sides of the road in one operation, and a separate device mounted on the structure for compressing and leveling the material of the road subsequently to the operation of the first device.

17. In a road working machine, the combination of a supporting structure, a scraping and grading device arranged to operate on both sides of the road at once, means for mounting the device on the structure, a second device arranged at the rear of the first for smoothing the surface and compressing the material of the road, and means for supporting the second device on the structure.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses:

DAVID M. TRABUE.

Witnesses:
J. C. KINNEAR,
F. M. BANTA.