No. 822,902. PATENTED JUNE 5, 1906.

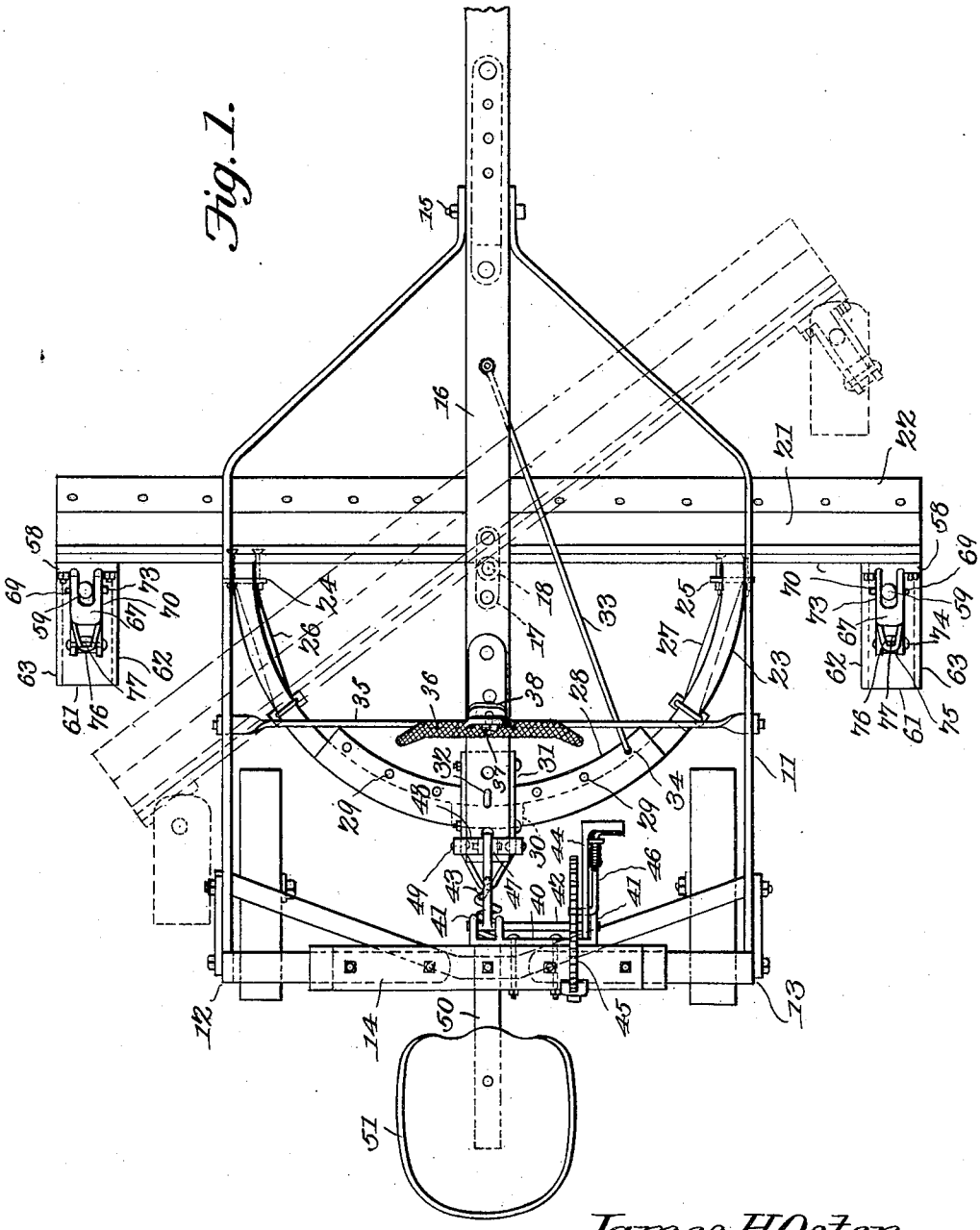
J. H. OSTEN.

ROAD SCRAPER AND GRADER.

APPLICATION FILED AUG. 29, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

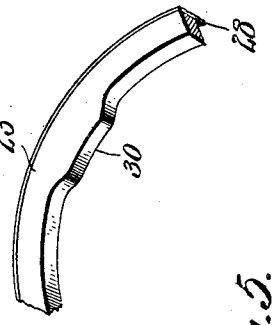

Fig. 5.

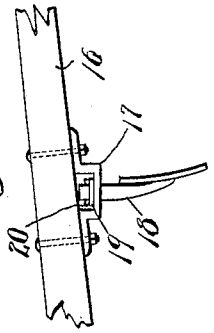

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

JAMES HENRY OSTEN, OF WHITE CITY, KANSAS, ASSIGNOR OF ONE-THIRD TO ROBERT GUY OSTEN AND ONE-THIRD TO JOHN WALKER, OF WHITE CITY, KANSAS.

ROAD SCRAPER AND GRADER.

No. 822,902. Specification of Letters Patent. Patented June 5, 1906.

Application filed August 29, 1905. Serial No. 276,258.

To all whom it may concern:

Be it known that I, JAMES HENRY OSTEN, a citizen of the United States, residing at White City, in the county of Morris and State of Kansas, have invented a new and useful Road Scraper and Grader, of which the following is a specification.

This invention relates to machines for grading and leveling roads, and has for its object to provide a device of this character of increased efficiency, utility, durability, and ready adaptability without structural change to the various classes of work required in building and repairing roads and similar operations.

Another object of the invention is to construct a device of this class which may be readily transformed into a ditch-forming machine.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of the embodiment of the invention capable of carrying the same into practical operation.

In the drawings, Figure 1 is a plan view, and Fig. 2 is a side elevation, of the improved apparatus. Fig. 3 is a detached perspective view, enlarged, of the segment-bracket. Fig. 4 is a perspective view, from beneath, of a portion of the central part of the segment. Fig. 5 is a detail view of the scraper-swivel mechanism.

In the improved device is comprised a main frame formed of side members 10 11, extending upwardly and inwardly at the rear ends, as at 12 13, and connected by a transverse member 14 and with the forward portions of the side members converging and pivotally connected, as at 15, to a draft-tongue 16, the rear end of the draft-tongue terminating near the transverse member 14.

Attached to the under side of the tongue 16 is a keeper 17, in which a pin 18 is rotatively disposed and secured therein from vertical movement by a washer 19 and key or pin 20, the latter preferably of the spring-cotter order, so that it will not become disengaged by the jarring or concussions to which the machine will be subjected. The pin 18 is enlarged at the lower end and bolted, as at 21, to the scraper member 22 of the machine, the latter preferably formed of a curved plate of steel, as shown.

The nose of the scraper is reinforced by a sharpened wear-plate 22, which may be renewed when worn or broken. By this simple arrangement the scraper member is pivotally coupled to the tongue and free to swing beneath the same. Rearwardly of the scraper member 21 is disposed a segmental member 23, having its ends extending downwardly and connected by clips 24 25 to the rear side of the scraper, the connection being further strengthened by diagonal braces 26 27. Secured upon the upper side of the segmental member 23 is a segmental plate 28, projecting in advance of the member 23 to form a flange thereto, the flanged portion provided with spaced apertures 29. The segmental member 23 is enlarged centrally for a short distance, as at 30.

Attached to the lower side of the tongue 16 is a keeper 31, corresponding in interior area to the segmental member 23 at its enlarged central portion 30, so that when the scraper 21, with its attached member 23, is in central position, as in full lines in Figs. 1 and 2, the member 23 will completely fill the keeper 31 and be held from vertical movement thereby, but free to move laterally when the scraper is adjusted or swung upon its pin 18, as indicated by dotted lines in Fig. 1. Thus when in central position or when moved slightly to the right or left upon its pivot 18 the segmental member 23 will be held thereby from vertical movement, and thus retain the scraper rigidly in position while operating squarely across the road, as in full lines in Figs. 1 and 2; but when the scraper is adjusted to the right or left to bring it into an angular position, as shown by dotted lines in Fig. 1, the thinner portions of the segmental member will pass into the keeper 31, and thus be free to move vertically to a limited extent, the object to be hereinafter explained.

Operating through the tongue 16 is a pin 32 for engaging the apertures 29 one at a time, as the scraper is adjusted to hold the latter rigidly in any desired adjusted position.

Swinging from the tongue 16 is a rod 33, terminating in a hook 34 for engaging with one of the apertures 29 and serving as a brace-rod to assist in holding the scraper member in position, the rod thus supplementing the work of the pin 32 and relieving the latter largely of strain. The side members 10 11 of the frame are connected by an arched bar 35, and connected centrally to this bar is a foot-rest 36, the foot-rest having an upwardly-extending bracket 37. Rising from the tongue 16 is a plate 38, longitudinally slotted and curved concentrically to the pivot 15 of the frame, the plate 38 bearing against the bracket 37 and the latter curved to correspond to the slotted plate. A pin 39 is secured in the bracket 37 and extends through the slot in the plate 38. By this means the free vertical movement of the tongue 16 and the scraper and other parts suspended therefrom is permitted, while at the same time all lateral movement is effectually prevented. The foot-rest portion 36 and its bracket 37 are in one piece of malleable iron or steel.

Attached to the forward side of the transverse frame member 14 is a bracket 40, having spaced ears 41, through which a shaft 42 is journaled, the shaft having an arm 43 at one end and an operating-lever 44 at the other end. A toothed segment 45 extends from one of the ears 41, and the lever 44 is provided with a spring-controlled pawl-rod 46 for engaging the teeth of the segment one at a time, and thus hold the arm 43 in any desired adjusted position. The free end of the arm 43 is coupled at 47 to the upper end of a link 48, while the lower end of the latter is coupled, as at 49, to the keeper 31. By this arrangement the rear end of the tongue 16 and its attached scraper and other parts may be adjusted vertically to any required extent and held at any desired adjusted position or elevated entirely from the ground when required.

Extending rearwardly of the frame member 14 is a bar 50, carrying a seat 51, and connected, as at 52, to the under side of the frame member is a brace 53, the brace being connected at 54 to the bar 50 and extended into a hook 55. A spring 56 is connected at one end to the hook 55 and coupled, as at 57, to the link 48, the spring thus exerting its force to maintain the tongue and its attachments yieldably in elevated position.

Connected to the rear face of the scraper member 21 are brackets 58, having vertical guideways, through which standards 59 are slidably disposed, the lower ends of the standards extending rearwardly, as at 60, and provided with shoes 61. The side edges of the shoes are turned downwardly, as at 62 63, to bear into the ground and prevent lateral movement of the device, as hereinafter explained. The brackets 58 are formed with rearwardly-extending spaced ears 64 65 and likewise provided with a plurality of teeth 66 between the ears.

Operating between the ears 64 65 is a bar 67, having teeth 68, corresponding to and adapted to engage the teeth 66 of the brackets, and provided at the upper end with spaced ears 69 70, bearing upon the opposite sides of the standard 59. The ears 69 70 are formed with transverse slots 71 72, through which a pin 73, connected to the standard 59, projects, and by which means the standards 59 are suspended from the bars 67. Pivoted at 74 between the ears 64 65 are cams 75 for bearing against the bars 67 and compressing the teeth 68 of the latter into locked engagement with the teeth 66 of the brackets. By this arrangement when the cams are released the bars 67 may be moved rearwardly until the teeth 68 are free from the teeth 66, when the shoes 61 may be adjusted vertically to any required extent, and then when the required position is attained the parts may be firmly locked together by merely actuating the cams, as will be obvious.

A link 76 is slidably disposed upon the bar 67 for bearing over the handle portion 77 of the cam 75 to retain the latter in its locked position. The pin 73, operating in the slots 71 72 in the ears 69 70 of the bar 67, permit the standard 59, together with the shoes 61 attached thereto, to rotate freely in the brackets 58, while at the same time moving vertically with the standards when the latter are adjusted. Thus the shoes will trail with the scraper when the latter is adjusted and automatically maintain their position parallel to the line of movement of the machine, and by reason of the depending ribs 62 63 on the shoes the latter by entering the ground will effectually prevent lateral movement of the machine.

The pin 18, the keepers 24 25, and brackets 58 are secured by bolts, so that they can be easily detached, and the scraper member 21 is provided with duplicate or triplicate sets of bolt-holes, so that the scraper member may be arranged to operate at one side of the tongue for use in forming irrigating-ditches and for similar purposes.

Having thus described the invention, what is claimed is—

1. In a device of the class described, a supporting-frame having carrying-wheels and with forwardly-converging side members, a draft-tongue pivoted to swing between the converging side members, means operative from said frame for adjusting said tongue vertically, a scraper supported from said tongue, an arched frame connecting said side members, a slotted standard extending from said tongue and curved concentrically with the pivot of the same, a plate connected to said arched frame with its forward face curved to correspond to the curve of said slotted

member, and a guide-pin extending from said plate and operating in said slot.

2. In a device of the class described, a supporting-frame having carrying-wheels, a draft-tongue swinging from said frame, means operative from said frame for adjusting said tongue vertically, a scraper supported from said tongue, a seat-supporting standard extending from said frame, a brace between said seat-standard frame with the free end of the brace extended into a hook, and a spring connecting said hook and tongue.

3. In a device of the class described, a draft-tongue, a scraper, means for movably coupling said scraper to said tongue, a segmental member connected at the ends to said scraper and provided with a central enlargement, a keeper attached to said tongue and embracing said segmental member and corresponding in interior area with the enlarged portion of the same, whereby the scraper is rigidly supported when in central position and flexibly supported when in its lateral positions.

4. In a device of the class described, a draft-tongue, a scraper, means for movably coupling said scraper to said tongue, a segmental member connected at the ends to said scraper and provided with a central enlargement, a flange-plate upon said segmental member and extending in advance of the same and provided with spaced apertures, a keeper attached to said tongue and embracing said segmental member and corresponding in interior area with the enlarged portion of the same, and a lock-pin extending through the tongue for engaging any one of the perforations in the flange-plate.

5. In a device of the class described, a draft-tongue, a scraper, means for movably coupling said scraper to said tongue, a segmental member connected by the ends to said scraper, a flange-plate upon said segmental member and extending in advance of the same and provided with spaced apertures, a keeper attached to said tongue and embracing said segmental member, a lock-pin extending through the tongue for engaging any one of the perforations in the flange-plate, and a stay-rod swinging beneath said tongue and terminating in a hook for detachable engagement with any one of the perforations in the flange-plate.

6. In a device of the class described, a draft-tongue, a scraper, means for suspending said scraper for rotation from said tongue, means for adjusting said scraper relative to said draft-tongue, brackets connected to said scraper and provided with spaced teeth, a standard rotatively and slidably disposed in said bracket and terminating in a shoe for bearing on the ground, a bar coupled to said standard and provided with spaced teeth for engagement with the teeth of said bracket, and means for locking said bar to said bracket.

7. In a device of the class described, a draft-tongue, a scraper, means for suspending said scraper for rotation from said tongue, means for adjusting said scraper relative to said draft-tongue, brackets connected to said scraper and provided with spaced ears and with teeth thereon between said ears, a standard rotatively and slidably disposed in said bracket and provided with a shoe for bearing on the ground, a bar flexibly coupled to said standard and extending between said ears and provided with teeth for engaging the teeth of said bracket, and a cam pivoted between said ears and operating to compress said bar into engagement with said bracket.

8. In a device of the class described, a draft-tongue, a scraper, means for suspending said scraper for rotation from said tongue, means for adjusting said scraper relative to said draft-tongue, brackets connected to said scraper and provided with spaced ears and with teeth between said ears, a standard rotatively and slidably disposed in said bracket and provided with a shoe for bearing on the ground, a bar extending between said ears and provided with spaced teeth for engagement with the teeth of said bracket, a cam pivoted between said ears and operating to compress said bar into engagement with said bracket, spaced arms extending from said toothed bar and embracing said standard and provided with transverse slots, and a pin extending through said standard and said slots.

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

JAMES HENRY OSTEN.

Witnesses:
HENRY TORGESON.
HENRY WADE.