Aug. 25, 1925. 1,550,858

R. J. WINSOR

SCARIFIER

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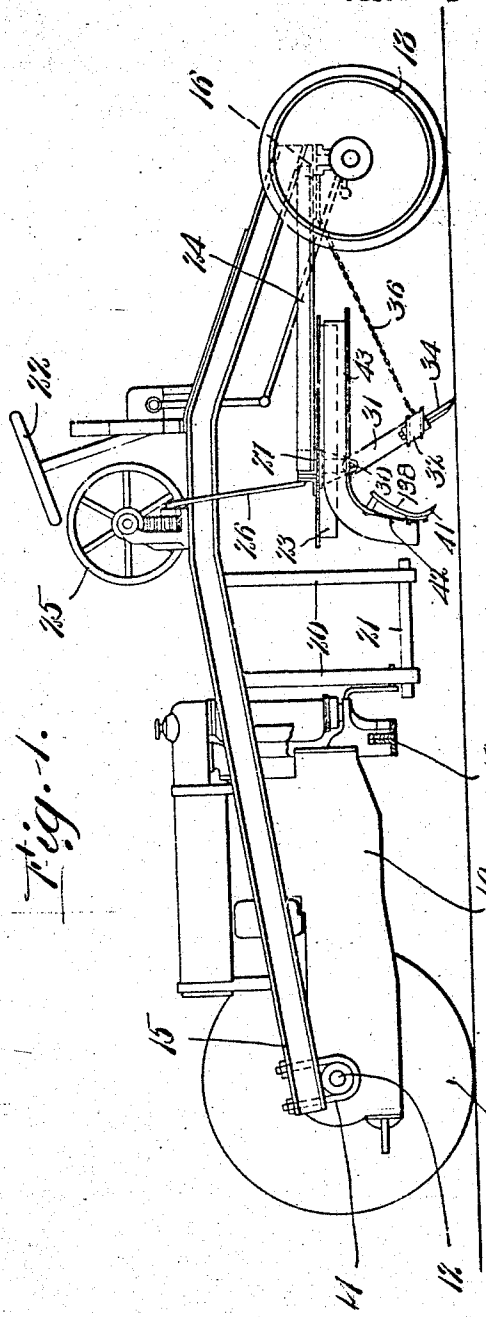


Fig. 1.

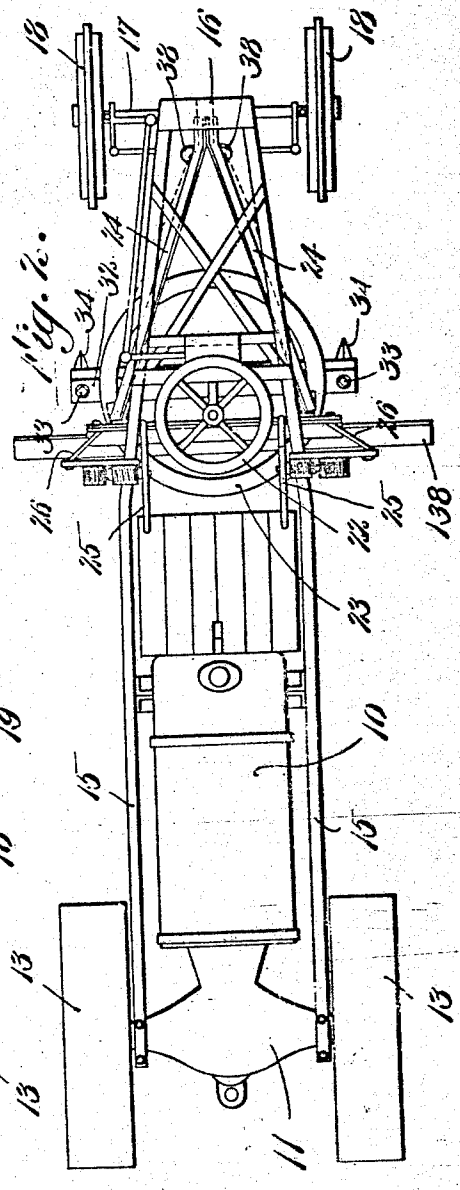


Fig. 2.

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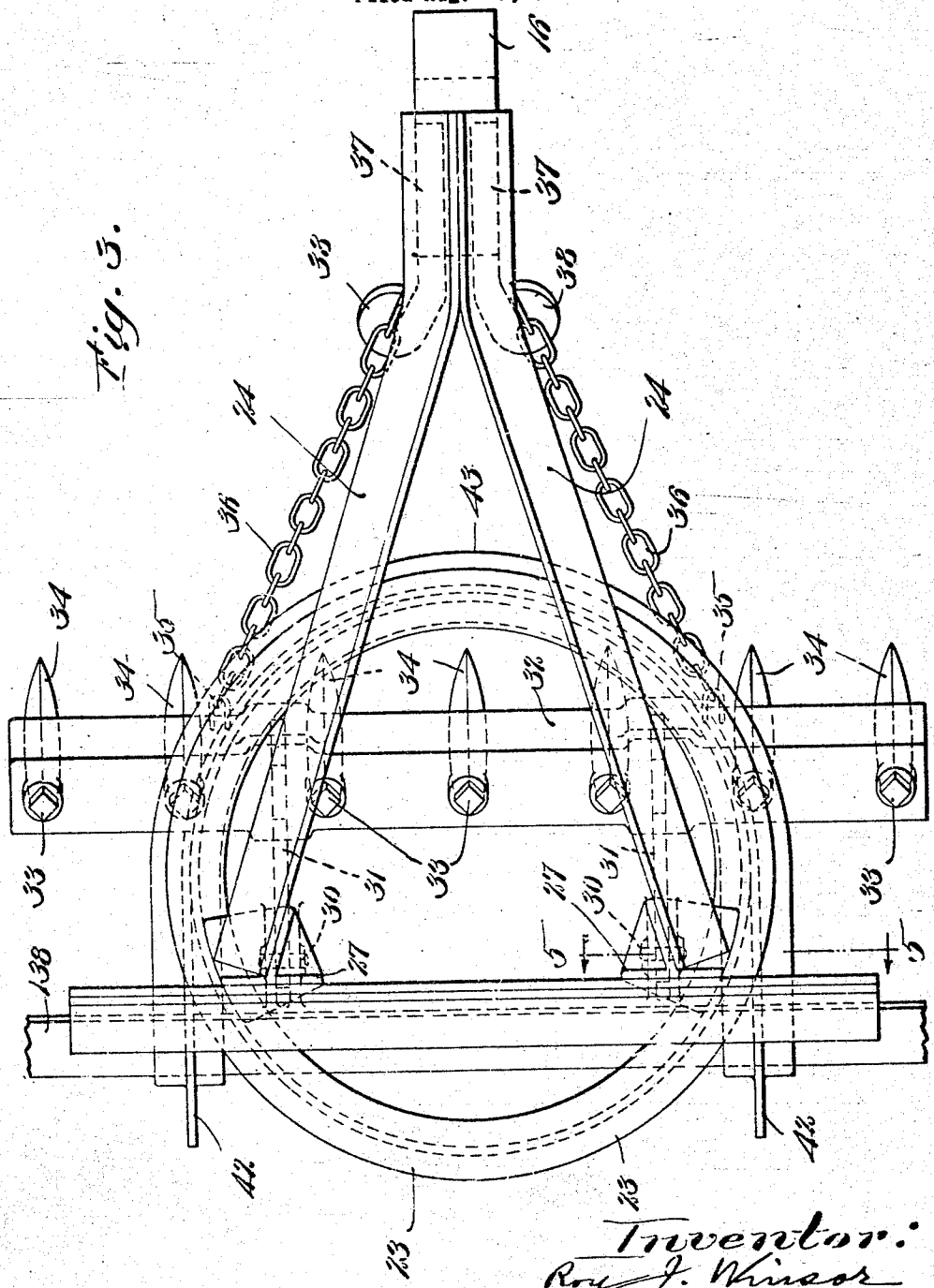
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Fig. 3.



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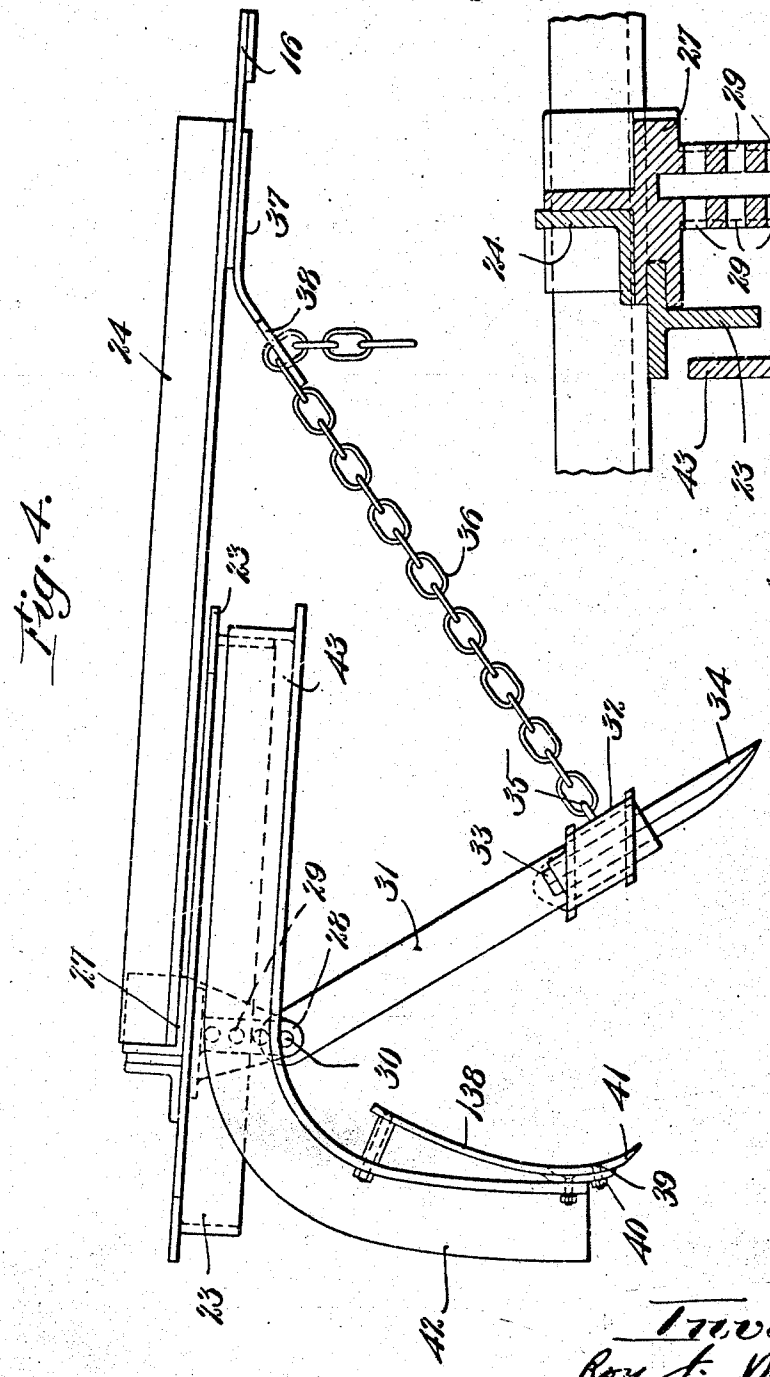


Fig. 4.

Fig. 5.

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Patented Aug. 25, 1925. 1,550,858

UNITED STATES PATENT OFFICE.

ROY J. WINSOR, OF BUCYRUS, OHIO.

SCARIFIER.

Application filed August 29, 1924. Serial No. 734,940.

To all whom it may concern:

Be it known that I, ROY J. WINSOR, a citizen of the United States, and a resident of Bucyrus, in the county of Crawford and State of Ohio, have invented an Improvement in Scarifiers, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings representing like parts.

My present invention relates to road working machines, and more particularly to an improved scarifier adapted for attachment to, and use in connection with, an improved road grading machine.

In the copending application of Roy J. Winsor, Serial No. 630,498, filed April 7, 1923, there is described and claimed an improved road grading machine in which the road grading knife of the device is mounted for rotative movement about a substantially vertical axis so as to bring the blade into any desired angular position with respect to the longitudinal axis of the machine. In certain road grading operations, it is desirable, and sometimes essential, that the surface of the road be scarified in order that the grading knife or blade may properly perform the work for which the machine was designed, and heretofore this has necessitated the use of an independent machine, other than a road grader. The use of such extra machine increases the cost of upkeep of the roads and attempts have been made to combine a scarifier with a road grading machine. A serious objection to such attempted prior structures resides in the fact that the scarifier is carried by the frame on which is secured the road grading blade and hence it has been impossible to adjust the scarifier independently of the adjustment of the road grading knife. In such prior structures there is no possibility of providing an independent adjustment of these two devices and, as is well known, the best results are obtained from a scarifier which lies substantially perpendicular to the line of travel of the machine to which it is attached.

With a view to overcoming the objections to existing and prior apparatus I have designed an improved suspension for scarifiers and like instruments which may be attached to, or formed integral with, a road grading machine carrying a grading knife or blade and my improved suspension makes it possible to adjust the angle of the road grading knife or blade independently of the scarifier, the limit of adjustability being determined by the width of the scarifier as, obviously, scarifiers of narrow width will allow a greater degree of adjustability of the grading blade than will wide scarifiers.

The object of my invention, therefore, is an improved scarifier and suspension means therefor.

In the accompanying drawings,

Fig. 1 illustrates a road grading machine of the type above referred to and to which my improved invention is applied;

Fig. 2 is a plan view of Fig. 1;

Fig. 3 is an enlarged detail plan view of so much of Fig. 1 as is necessary to a clear understanding of my invention;

Fig. 4 is a side elevation of Fig. 3, and

Fig. 5 is a vertical sectional detail on the line 5—5 of Fig. 3.

Referring to the drawings, 10 designates a self-contained power plant having formed integral therewith a differential and rear axle housing 11, the rear axle 12 extending through such housing having secured at its ends the tractor wheels 13. Secured to the rear axle housing by U-shaped straps 14 is a rear end of a framework comprised of side members 15 which extend upwardly and forwardly and thence downwardly, being secured at their front end to a front member 16 to the lower end of which is pivotally attached the front axle 17 carrying at its outer ends rotatably mounted guide wheels 18. Intermediate the ends of the frame members 15 and extending therebetween and under the forward end of the power plant 10 is a yoke or framework 19 which supports the forward end of the power plant. Secured to the side frame members 15 and downwardly depending therefrom are members 20 supporting a platform 21 on which stands the operator who controls the power plant 10 in the usual manner and controls the guiding of the entire machine by means of the steering wheel 22.

Under the forward portion of the side frame members 15 and secured to such frame members in any suitable manner is a circular guideway or ring 23, and secured to the top face of such member 23 and on each side thereof are the rear ends of angle members 24, which angle members converge forwardly and are secured in any other or suitable manner to the members 16 at the front of the frame. Means for controlling

the vertical adjustment of the member 23 consists in hand wheels 25 connected through linkage 26 to the upper face of such member 23. Secured to the top of the member 23 by welding, rivetting, or in any other suitable manner, and on each side of the longitudinal axis of the machine are members 27, as clearly shown in Fig. 5, and the members 24, in addition to being secured to the member 23, is also secured to the member 27 by welding, or in any other suitable manner. Formed integral with the member 27 and on the under face thereof and spaced apart from each other are depending lugs 28 provided with a plurality of pairs of aligned holes 29 through which may pass the holding pin 30. Pivotally mounted on the pin 30 on either side of the member 23 is the upper end of a connecting plate 31, the lower end of these connecting plates being secured to a scarifier body or beam 32. Secured in the scarifier beam 32 in any suitable manner, as by the nuts 33, are scarifier blades 34 which depend downwardly and in substantial alignment with the connecting plates 31. As thus far described, therefore, it would be possible to lift the scarifier body 32 with attached blades 34 upward about the pins 30 as a pivot. Secured to the scarifier body 32 on opposite sides of the center thereof are eyes or staples 35 and to each eye or staple 35 is attached one end of a chain 36. Secured to the member 16 beneath the members 24, and extending rearwardly and downwardly, is a member 37, the downwardly extending portion of which is forked, and each forked portion is slotted, as shown at 38. In this slotted portion 38 is secured the end of the chain 36. The member 23 and forwardly converging members 24, being fixed with regard to the longitudinal axis of the machine, the scarifier as above described will lie in a plane perpendicular to the longitudinal axis of the machine and it has been found that this is the best position for economical working of the scarifier.

The road grading blade or knife is comprised of a curved plate 138 having secured at its lower edge by bolts 39 and nuts 40 a removable blade 41, and the curved plate is secured to the downwardly extending arms 42 of a frame by bolts and nuts, as clearly shown in Fig. 4. The upper portion 43 of the frame partially encircles the ring member 23 and means is provided (though not shown) for adjustably securing the member 43 to the member 23 to thereby enable the angle that the blade 138 makes with the longitudinal axis of the machine to be varied at will. It is obvious, therefore, from an inspection of Fig. 3, that the curved plate 138 may be moved with respect to the ring member 23 and the forwardly converging members 24 as well as with respect to the scarifier body 32 until such curved plate 138 contacts with the outer end of the scarifier body 32.

It is obvious, from the above, that my improved suspension for scarifiers may be attached to already existing types of road working machines and the devices already on such road working machines may be adjusted, as formerly, independently of the scarifier. Therefore, while I have necessarily shown and described the preferred embodiment of my invention somewhat in detail, it is to be understood that I may vary the size, shape, and arrangement of parts within wide limits without departing from the spirit of the invention.

Having thus described my invention, what I claim as new is:

1. In a road grading machine, the combination with a frame, a road working tool pivotally attached to said frame, a scarifier attached to said frame, and means for adjusting the road working tool independently of the scarifier.

2. In a road grading machine, the combination with a frame, means for attaching a scarifier to said frame in fixed relation to the longitudinal axis of the machine, a road grading tool attached to said frame, and means for adjusting the angle of said tool about a vertical axis and with respect to the longitudinal axis of the machine.

In testimony whereof, I have signed my name to this specification.

ROY J. WINSOR.