Jan. 28, 1930. E. J. RIMPLE ET AL 1,744,801

RIDGE LEVELER

Filed Dec. 27, 1927

Fig. 1

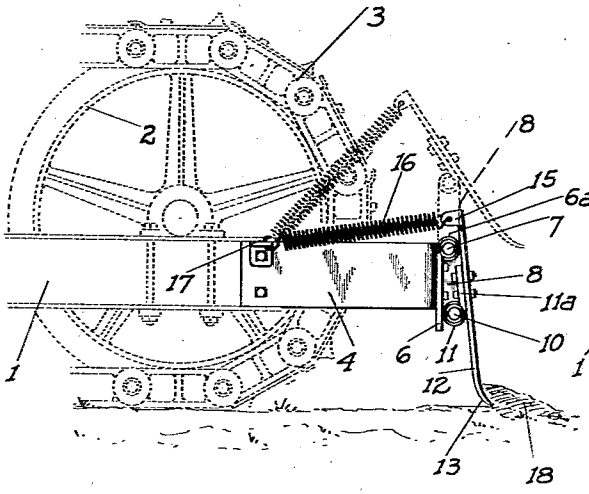


Fig. 2

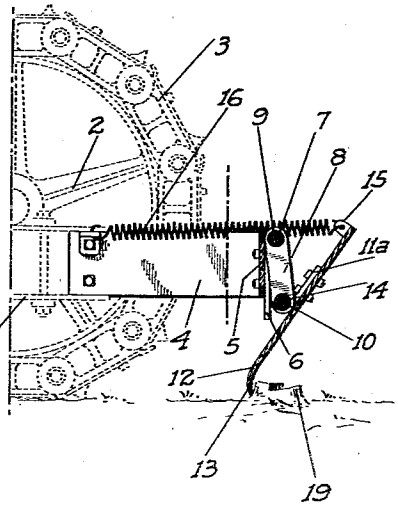
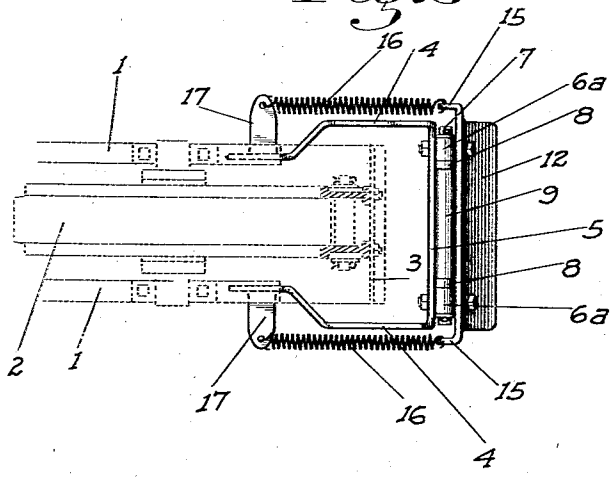


Fig. 3



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RIDGE LEVELER

Application filed December 27, 1927. Serial No. 242,669.

This invention relates to improvements in attachments for tractors and particularly to a ridge or ground leveling implement to be used in connection with tractors of the endless track type.

With such tractors if the ground ahead of the path of movement of the tractor has ridges or small raises thereon, such as is found in fields which have been checked, the endless track climbs up such ridges until the overhanging or forward weight of the machine is sufficient to overcome the weight of the rear part. The forward part then descends suddenly to the normal level of the ground beyond the ridge.

This action is well known to those who have had occasion to drive such tractors, and of course constant recurrence of the same sets up severe strains in the machine with a consequent rapid deterioration and undue wearing of the tractor, and is very disagreeable to the driver.

Devices for leveling such ridges have heretofore been provided. As far as we are aware, however, these are all rigid devices incapable of the flexing necessary to meet different conditions.

For instance when a rigid obstruction is encountered which cannot be leveled a tendency of course is present to strain or break the leveling device. Also when the tractor is backing up and throwing dirt from the track between the same and the leveler, the dirt is inclined to pack into this space and has to be then manually removed to prevent clogging.

The principal object of our invention therefore is to provide a leveling device in the form of an attachment adapted to be permanently mounted on a tractor, so constructed that it may give when a rigid obstruction is encountered, so that the possibility of breakage is eliminated. It is also constructed to be able to give when the tractor is backed up, so that the dirt will not then jam between the tracks and the leveler.

Also the leveler blade is so arranged that without detaching the same from the tractor it may be swung up to a position well clear of the ground when its use is not necessary.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side elevation of the device as applied to a tractor and with the leveling blade in its normal position.

Fig. 2 is a similar view partly in section showing the position assumed by the blade when a rigid obstruction is encountered.

Fig. 3 is a top plan view of the attachment.

Referring now more particularly to the characters of reference on the drawings, the attachment shown is particularly designed to be applied to that form of endless tractor having transversely spaced side frames 1 for each forward sprocket 2, about which sprocket the endless track 3 with its links and projecting grousers passes.

Our attachment comprises a horizontal frame or supporting structure consisting of longitudinal members 4 bolted onto the outside of the frames 1 adjacent their forward ends and extending forwardly thereof. The members 4 are connected at their forward ends a certain distance ahead of the track 3 by a cross member 5. The members 4 and 5 are preferably formed integral with each other, the members 4 being bent outwardly ahead of the frame 1 so that they are disposed in suitable clearance relation to the track 3.

Secured to the member 5 on the forward side thereof and adjacent its upper end are transversely spaced straps 6, the upper ends of which are bent to form forwardly extending eyes 6^a to receive a pin 7.

Links 8 are mounted at their upper ends on this pin either inwardly or outwardly of the eyes, a spacer sleeve 9 being disposed on said pin between the links.

The lower ends of the links are mounted on a pin 10 which passes through eyes 11

formed on the lower end of vertical straps 11ª. These straps are attached to the rear face of a leveling blade 12 which normally projects to a point adjacent the ground and preferably has a slight forward curvature along its bottom edge as shown at 13. This blade is of course at least as wide as the track 3 so as to completely level out any ridge in the path of movement of said track.

The pin 10 also has a spacer sleeve 14 between the links 8.

Ears 15 are attached to the upper corners of the blade, from which ears, a tension spring 16 extends to brackets 17 which project outwardly from the members 4 adjacent their rear ends. These brackets are disposed relative to the ears so that the springs will be substantially parallel to each other.

These springs are normally about slack, or with just sufficient tension to cause the eyes 11 and blade 12 to rest against the straps 6 and eyes 6ª respectively. This causes the blade to normally have a slight forward slope as shown in Fig. 1.

In operation when a dirt ridge indicated at 18 in Fig. 1 is encountered in the path of movement of the tracks, the blade 12 engages the same and with the forward movement of the tractor this ridge will be leveled off. The blade is straight transversely and disposed at right angles to the line of travel of the tractor, so that some of the dirt will be retained by the blade and deposited in any low places in the ground which may be present beyond a ridge. With this action of the blade the spring is placed somewhat in tension, but is of sufficient strength to overcome the resistance of the dirt of the ridge without undue expanding or flexing movement.

If an immovable object, such as is indicated at 19 in Fig. 2, should be encountered by the blade, the springs will give so that the blade may swing back as shown in Fig. 2 until the obstruction is cleared.

The spring of course then acts to restore the blade to its normal position. With this action the blade will then turn on the lower pin 10 as a hinge, the links remaining stationary against the member 5.

If the tractor is backing up, tending to throw dirt between the track links and blade, the latter will simply swing forward as much as may be necessary, then turning on the upper pin 7 as a hinge. In this case the links move relative to the member 5 but remain in contact with the blade, and the springs offer no resistance. The blade may therefore be considered as being mounted on double and vertically spaced hinges which function independently of each other, depending on different conditions met with when in operation.

If the blade is not to be used, it is merely raised vertically by hand so that the position of the links is reversed, as indicated in dotted lines in Fig. 1. The blade is then raised above the ground a distance practically equal to double the length of the links and is held from dropping to the ground by the springs 16 which remain in their normal slack condition. At the same time a slight initial movement imparted to the blade will cause the same to be returned to the ground.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described our invention what we claim as new and useful and desire to secure by Letters Patent is:

1. A ridge leveling attachment for endless track tractors comprising a supporting structure adapted to be attached to the tractor, a leveling blade disposed ahead of the track thereof, and vertically spaced double-pivotal connecting means between said structure and the blade functioning independently to enable the latter to flex both rearwardly and forwardly on the structure.

2. A ridge leveling attachment for endless track tractors comprising a supporting structure adapted to be attached to the tractor, a leveling blade disposed ahead of the track thereof, vertically spaced double-pivotal connecting means between said structure and the blade functioning independently to enable the latter to flex both rearwardly and forwardly and yieldable means resisting rearward flexing of the blade.

3. A ridge leveling attachment for endless track tractors comprising a supporting structure adapted to be attached to the tractor, a leveling blade disposed ahead of the track thereof, vertically spaced double-pivotal connecting means between said structure and the blade functioning independently to enable the latter to flex both rearwardly and forwardly relative to the tractor, and spring means resisting rearward flexing of the blade.

4. A ridge leveling attachment for endless track tractors comprising a supporting structure adapted to be attached to the tractor, a leveling blade ahead of the track thereof, and double vertically spaced hinge means between the blade and structure and independently functioning to allow the blade to flex both rearwardly and forwardly on the supporting structure.

5. A ridge leveling attachment for endless track tractors comprising a supporting structure adapted to be attached to the tractor, a leveling blade ahead of the track thereof, vertical links between the blade and structure hinged onto the structure at their upper ends

and onto the blade at their lower ends, and means resisting rearward turning of the blade about the lower hinge connections of the links with said blade.

6. A ridge leveling attachment for endless track tractors comprising a supporting structure adapted to be attached to the tractor, a leveling blade ahead of the track thereof, vertical links between the blade and structure hinged onto the structure at their upper ends and onto the blade at their lower ends, and a normally slack tension spring between the blade and supporting structure and connected to the blade above the link connection therewith.

7. A ridge leveling attachment for an endless track unit, said unit including side frames between which the track is disposed, comprising a substantially U-shaped horizontal supporting member secured to the frames adjacent their forward ends and extending ahead of and across the track, a leveling blade depending from the front end of said member, and connecting means between said member and blade adjacent both sides of the same to enable the blade to flex rearwardly when its lower end encounters a certain resistance.

In testimony whereof, we affix our signatures.

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