

April 22, 1924.

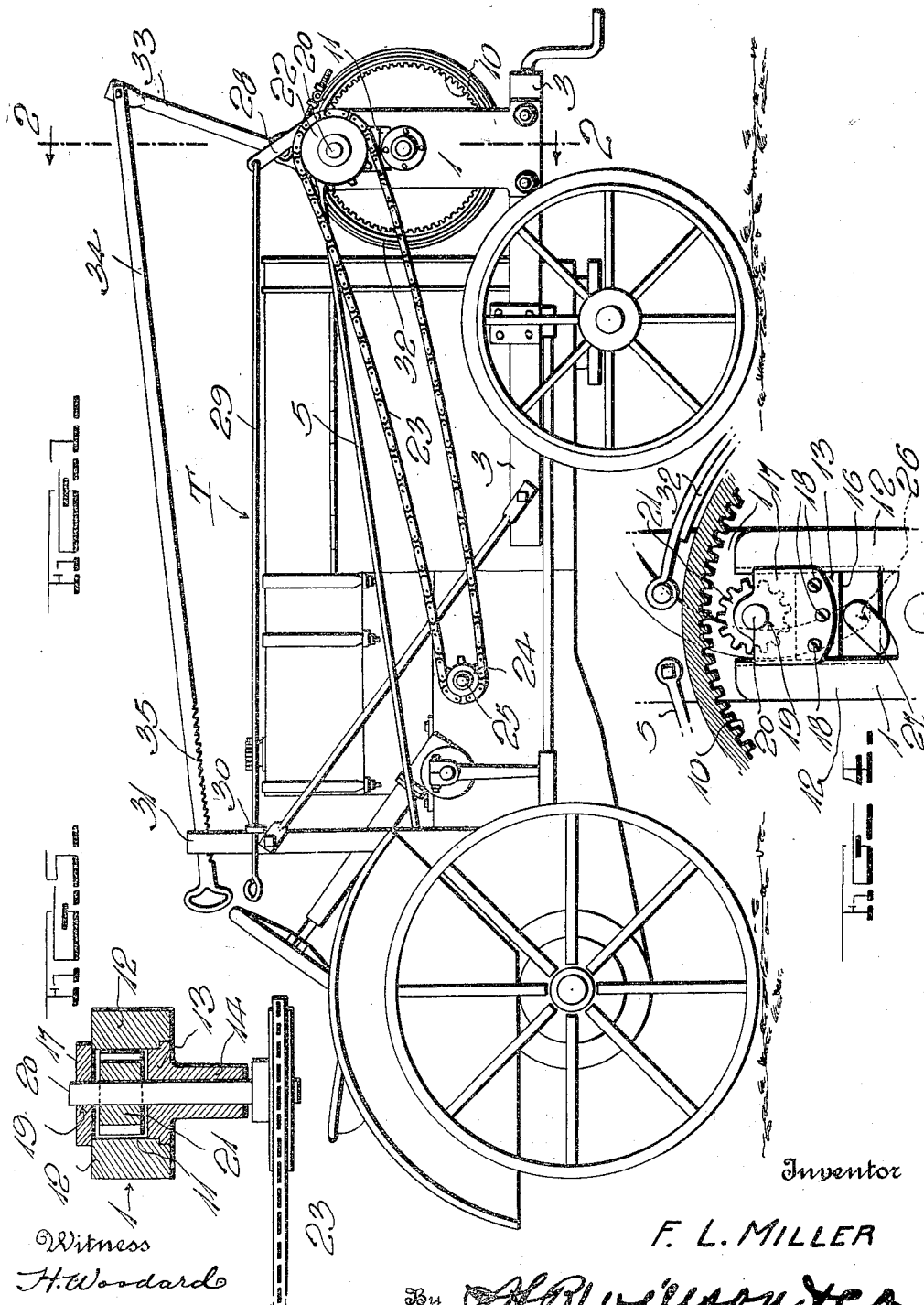
1,491,718

F. L. MILLER

WINCH DRIVING MEANS

Filed May 28, 1923

2 Sheets-Sheet 1



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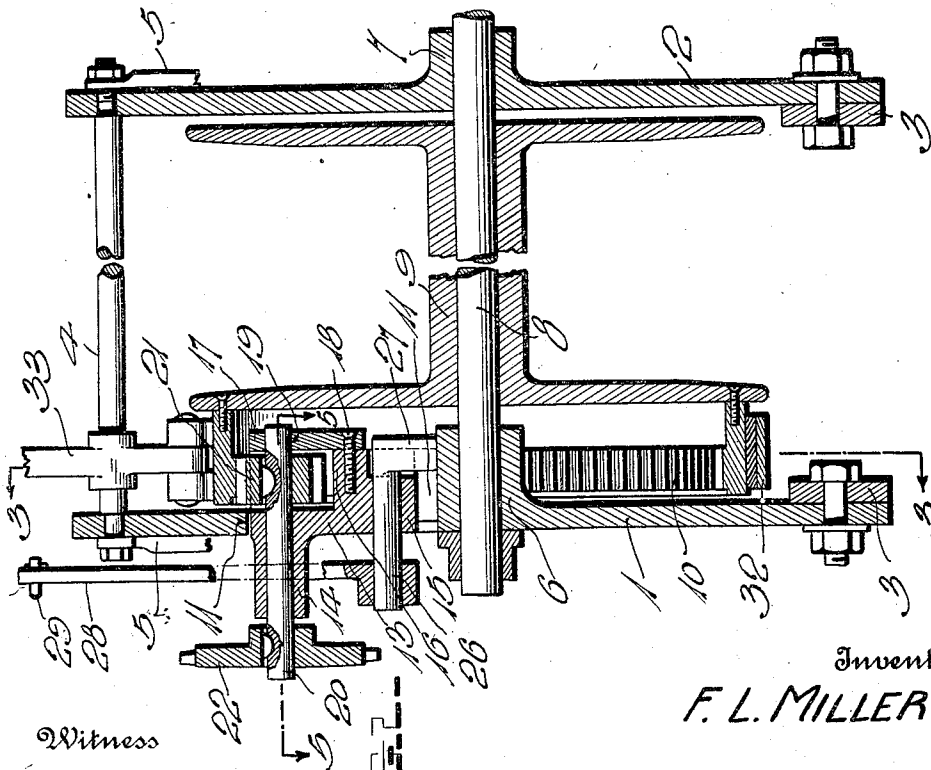
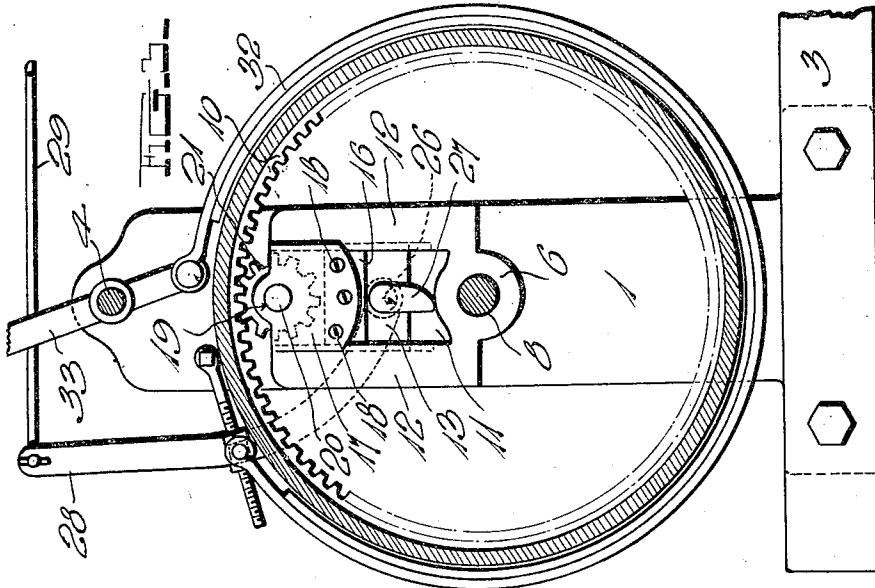
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UNITED STATES PATENT OFFICE.

FRANK LEWIS MILLER, OF PARKERSBURG, WEST VIRGINIA.

WINCH-DRIVING MEANS.

Application filed May 28, 1923. Serial No. 642,050.

To all whom it may concern:

Be it known that I, FRANK LEWIS MILLER, a citizen of the United States, residing at Parkersburg, in the county of Wood and State of West Virginia, have invented certain new and useful Improvements in Winch-Driving Means; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to driving mechanisms and more particularly to mechanisms intended primarily for use in connection with hoisting winches, for instance, a winch attachment for tractors.

The object of the invention is to provide a simple and inexpensive, yet a reliable and efficient driving mechanism which may be thrown into and out of gear in a novel manner.

With the foregoing in view, the invention resides in the novel subject matter herein-after described and claimed, the description being supplemented by the accompanying drawings.

Figure 1 is a side elevation showing the application of my invention to a hoisting attachment for a tractor.

Figure 2 is an enlarged vertical transverse sectional view on line 2—2 of Fig. 1.

Figure 3 is a sectional view as indicated by line 3—3 of Fig. 2, showing the driving pinion in mesh with the winch-carried gear ring.

Figure 4 is a view similar to a portion of Fig. 3 but illustrating the pinion moved out of mesh with the gear ring.

Figure 5 is a horizontal sectional view as indicated by line 5—5 of Fig. 2.

In the drawings above briefly described, the numerals 1 and 2 designate a pair of supporting plates whose lower ends are secured to longitudinal bars 3, attached in any desired manner to a tractor T, said plates being connected at their upper ends by a tie-rod 4 from which one or more brace rods 5 may lead rearwardly. The plates 1 and 2 are provided with horizontally alined bearings 6 and 7 respectively, in which the shaft 8 of a winch 9 is mounted, said winch having an internal gear ring 10 extending into close relation with the plate 1. This plate is provided, within the confines of the gear ring 10, with a substantially radial opening 11 and the inner

side of said plate is provided with parallel ribs 12 at opposite sides of said opening. A shaft-carrying block 13 is slidably received in the opening 11 and suitably engaged with the ribs 12, said block having a pair of spaced bearings 14 and 15 and an inwardly extending boss 16 between them. A bearing plate 17 is secured by screws or the like 18 to the boss 16 and extends into inwardly spaced relation with the bearing 14, said plate being formed with an opening 19 alined with said bearing. A short horizontal shaft 20 is rotatably received in the bearing 14 and the opening 19 and is provided on its inner end with a driving pinion 21 adapted to co-operate with the gear ring 10. The outer end of the shaft 20 may be provided with any suitable driving means but I have shown a sprocket 22 thereon co-acting with a sprocket chain 23 for driving the shaft 20 from another sprocket 24 on a driven shaft 25 of the tractor T.

A short horizontal rock-shaft 26 is rotatably mounted in the bearing 15 and is provided on its inner end with a cam 27 to co-operate with the lower end of the opening 11 for the purpose of raising the block 13 to mesh the pinion 21 with the gear ring 10 as shown in Fig. 3, or to permit said block to lower as disclosed in Fig. 4, to unmesh the pinion and ring. The shaft 26 may be controlled by any suitable means, but I have shown an arm 28 rising from said shaft and a control rod 29 leading rearwardly and passing through a suitable guide 30, so that it may be easily operated by the driver of the tractor. The guide 30 may well be mounted upon a suitably braced standard 31 secured to the tractor.

By employing the construction shown and described, or a substantial equivalent thereof, it will be seen that the pinion 21 may be moved into or out of mesh with the gear ring 10, to either positively drive the winch 9 and wind a cable or the like thereon, or to permit this cable or other element to pay out. To control the idle rotation of the winch, I prefer to provide a suitable brake band 32 upon the outer side of the gear ring 10, said band being under the control of the operator through the instrumentality of a suitable lever 33 and rearwardly extending link 34. This link may be provided with teeth 35 to engage a suitable detent on the standard 31 or other desired part, to hold the brake in different adjusted positions.

Excellent results are obtainable from the details disclosed and these details may therefore be followed, but it is to be understood that within the scope of the invention as claimed, numerous minor changes may be made.

I claim:

1. A device of the class described comprising a supporting plate having a bearing and a substantially radial opening adjacent the same, a carrier block slidably received in said opening, said block having a bearing parallel with the bearing of said plate, a bearing plate carried by said block and having a bearing opening spaced from and in opposed relation to the bearing of the block, a pinion carrying and driving shaft rotatable in the bearing of said block and bearing opening of said bearing plate, a pinion carried by said shaft between the bearing plate and bearing of the block, a rotatable member having a shaft mounted in the bearing of said plate, said member having a gear in the same plane with the pinion of said pinion-carrying and driving shaft, and means for shifting said block in said opening to control the mesh of the pinion with the gear.

2. A device of the class described comprising a supporting plate having a bearing and an opening radially of the same, a carrier block slidably received in said opening, said block having upper and lower bearings parallel with the bearing of said plate, a rotatable member having a shaft received in the bearing of said bearing plate, a bearing plate secured to said block and having a bearing opening in spaced relation to the upper bearing of said block, said member having a gear

adjacent said plate, a pinion driving and carrying shaft mounted in the upper bearing of said block and bearing opening of said bearing plate, a pinion carried by said shaft and disposed between the upper bearing and bearing plate in the same plane with said gear for meshing therewith, and a rock shaft mounted in the lower bearing of said block and having a cam for engaging the bearing of said supporting plate shifting said block to control mesh of the pinion with the gear.

3. A device of the class described comprising a plate having a bearing, a substantially radial opening adjacent the same and a pair of parallel ribs on one side at opposite sides of said opening, a block slidably received in said opening and engaging said ribs, said block having spaced parallel bearings and a boss between them extending to the free edges of said ribs, a rock shaft rotatable in one of the block bearings and having a cam operable to shift the block between said ribs, a bearing plate secured to said boss and extending to a point opposite one end of the other block bearing, said bearing plate having an opening aligned with this bearing, a pinion carrying and driving shaft rotatable in said last named opening and the bearing aligned therewith, said shaft having its pinion disposed between the two ribs, and a rotatable member having a shaft received in the bearing of said first named plate, said member having an internal gear ring for mesh with said pinion.

In testimony whereof I have hereunto affixed my signature.

FRANK LEWIS MILLER.