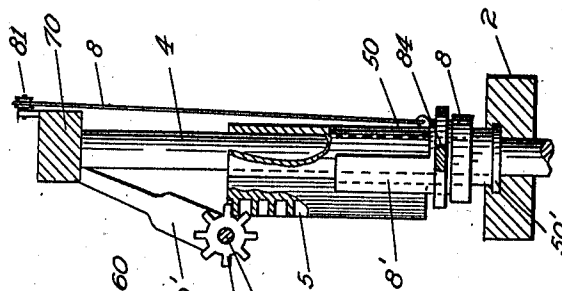
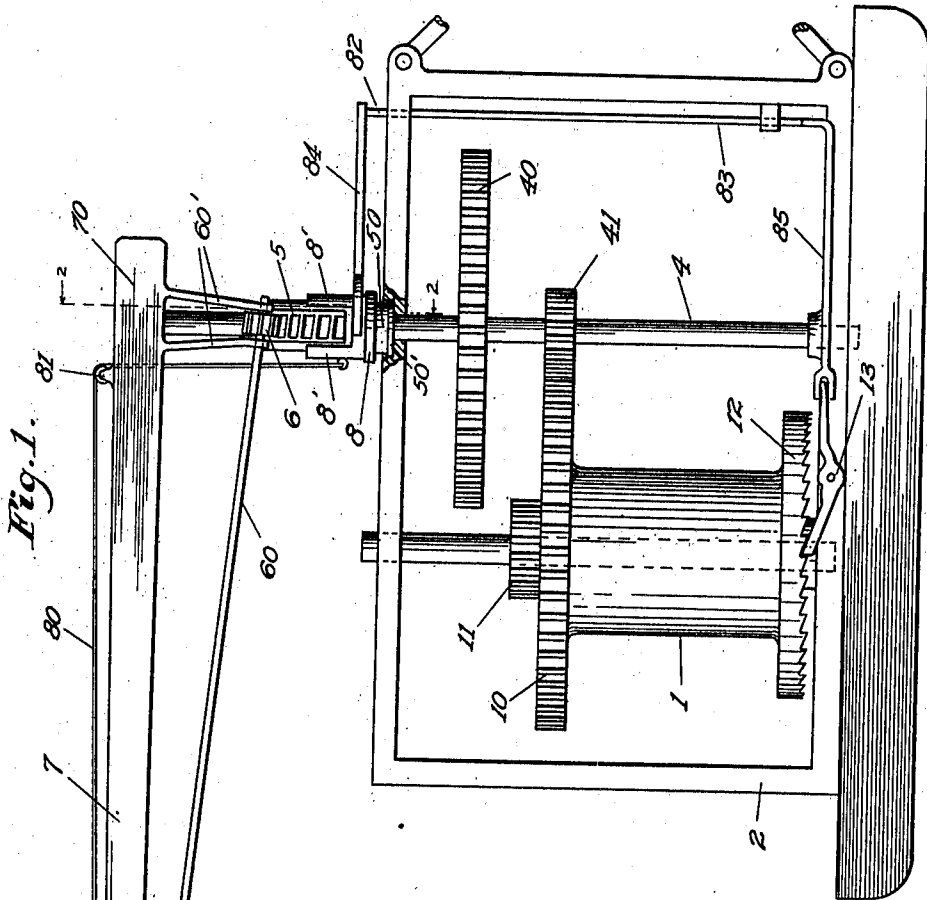


A. H. VIK.
SHIFTING MECHANISM.
APPLICATION FILED NOV. 30, 1909.

982,399.

Patented Jan. 24, 1911.



Witnesses
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Fig. 3.

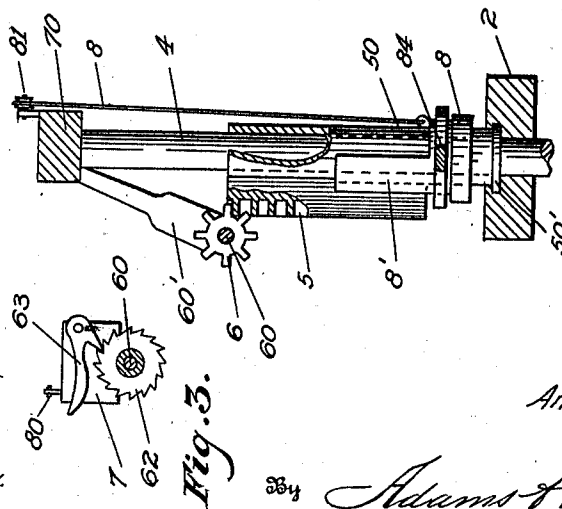


Fig. 2.

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ANDREW H. VIK, OF POULSBO, WASHINGTON, ASSIGNOR OF ONE-HALF TO RASMUS H. VIK, OF POULSBO, WASHINGTON.

SHIFTING MECHANISM.

982,399.

Specification of Letters Patent.

Patented Jan. 24, 1911.

Application filed November 30, 1909. Serial No. 530,659.

To all whom it may concern:

Be it known that I, ANDREW H. VIK, a subject of the King of Norway, and a resident of the town of Poulsbo, in the county of Kitsap and State of Washington, have invented certain new and useful Improvements in Shifting Mechanism, of which the following is a specification.

The primary aim of the present invention is the provision of improved shifting means for adjusting variable speed mechanisms.

The invention embraces certain novel features in the construction and arrangement of parts as hereinafter set forth and defined in the appended claims.

With reference to the accompanying drawing wherein like reference numerals designate corresponding parts throughout: Figure 1 is a side elevation of a pulling and hauling mechanism with my invention applied thereto. Fig. 2 is a fragmentary section on line 2—2 of Fig. 1, and Fig. 3 is a section on line 3—3 of Fig. 1.

With reference to the drawing numeral 1 designates a drum rotatably mounted in a suitable frame 2 in connection with a drive gear wheel 10 and a drive pinion 11, and 4 indicates a longitudinally adjustable shaft rotatably supported in said frame and having a driving wheel 40 and a driving pinion 41 secured thereto for engagement with gears 11 and 10 respectively as may be desired to operate the drum at relatively high or low speed.

For the purpose of effecting adjustment of shaft 4 I provide a rack and pinion device comprising a rack 5, secured to a sleeve 50 loose on the said shaft and provided with a collar 50' engaged in a thrust bearing on frame 2, and a pinion 6 secured to a rod 60 rotatably mounted in suitable hangers 60' of a head 70 which is secured to shaft 4. In the arrangement shown, head 70 has extension in the form of a sweep 7, and rod 60 is likewise extended and provided at the outer end with a hand wheel 61 and a ratchet wheel 62, the latter of which is normally engaged by a relatively fixed pawl 63 mounted on the sweep.

In the position of the parts as shown pinion 41 is meshing with wheel 10 for effecting, by rotation of shaft 4, a relatively low speed motion of the drum. If desired to increase the speed of the drum, pawl 63 is disengaged

from its ratchet to release rod 60 for rotation with pinion 6. Shaft 4 will then be free to slide longitudinally and come by gravity to a lowered position wherein gear wheel 40 meshes with pinion 11. Adjustment of shaft 4 in a reverse direction to that just described is effected by rotating pinion 6, through the medium of hand wheel 61 in the proper direction to cause it to ride upwardly on rack 5, as will be obvious.

In connection with drum 1 I have shown a back stop mechanism comprising a ratchet wheel 12, secured to the drum, and a relatively fixed pawl 13 which is connected by means of a shifter 82, with a slip collar 8 mounted on sleeve 50 and having spaced apart extensions 8' which slidably embrace rack 5. Shifter 82 comprises a stem 83 slidably mounted on frame 2, and arms 84 and 85 secured to said stem and engaged respectively with collar 8 and the stem of pawl 13 whereby upward movement of the collar elevates the shifter to move pawl 13 to a releasing position with respect to its ratchet. Such movement of the collar is conveniently effected through the medium of a rope 80 secured thereto and leading over an elevated guide 81 on head 70 and thence to the outer end of sweep 7.

With the parts adjusted as in the drawing, the operation is as follows: A pulling and hauling cable is secured to drum 1 and power applied to the sweep to rotate shaft 4 and thereby drive the drum through the medium of the gears 41 and 10 to effect the desired pulling operation, as for example, to extract a stump. If desired to then move or haul the stump, pawl 63 is disengaged from its ratchet to release pinion 6 for lowering movement of shaft 4 to bring wheel 40 into mesh with pinion 11 for operation of the drum at relatively high speed.

When desired to effect a subsequent pulling operation, hand wheel 61 is rotated to cause pinion 6 to ride upwardly on rack 5 and thereby elevate shaft 4 a suitable degree to carry wheel 40 just clear of pinion 11. Collar 8 is then drawn upwardly by pulling on rope 80 to operate shifter 82 to disengage pawl 13 from its ratchet and thereby release the drum for run out of the cable. Hand wheel 61 is then further rotated to bring pinion 41 into mesh with wheel 10 and the pulling operation proceeded with as before.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States of America, is:

5 1. A shifting mechanism comprising an element, means supporting said element for rotation and for adjustment longitudinally of its axis, and a device for effecting longitudinal adjustment of said element comprising
10 a pinion supported thereby to be carried with it during its rotary movement and longitudinal adjustment, and a rack supported on a relatively fixed part.

2. A shifting mechanism comprising a rotatable element, means supporting said element for rotation and for longitudinal adjustment, a sweep connected to said element for rotating the same, and a device comprising companion rack and pinion members for
20 effecting longitudinal adjustment of said element and being rotatable therewith, one of said members being movable longitudinally with said element and the other being supported on a relatively fixed part against
25 thrust of its companion member.

3. A shifting mechanism comprising a rotatable element, means supporting said element for rotation and for longitudinal adjustment, a sweep connected to said element
30 for rotating the same, means for adjusting said element longitudinally, said last means being rotatable with said element and comprising a pinion carried by said element and a rack supported on said first means and
35 meshing with said pinion, and outwardly

projecting operating means for said pinion on said sweep.

4. A shifting mechanism comprising a rotatable element, means supporting said element for rotation and for longitudinal adjustment, a sweep connected to said element for rotating the same, means for adjusting said element longitudinally, said last means being rotatable with said element and comprising a pinion carried by said element and
45 a companion rack supported on said first means, a rod fixed to said pinion and journaled on said sweep, means engaged with the outer end of said rod for rotating the same, and means for holding said rod against
50 rotation.

5. In apparatus of the character described, a drum, means supporting said drum for rotation, a shaft supported for rotation and for lengthwise adjustment, a driving connection between said shaft and drum comprising gears of relatively large and small diameter arranged for adjustment by sliding movement of said shaft to effect the operation of said drum at varying speeds, and
60 means for shifting said shaft, said last means being rotatable with said shaft and comprising a rack and pinion device.

Signed at Seattle, Washington this 19th day of November 1909.

ANDREW H. VIK.

Witnesses:

HERCHMER JOHNSTON,
ARLITA ADAMS.