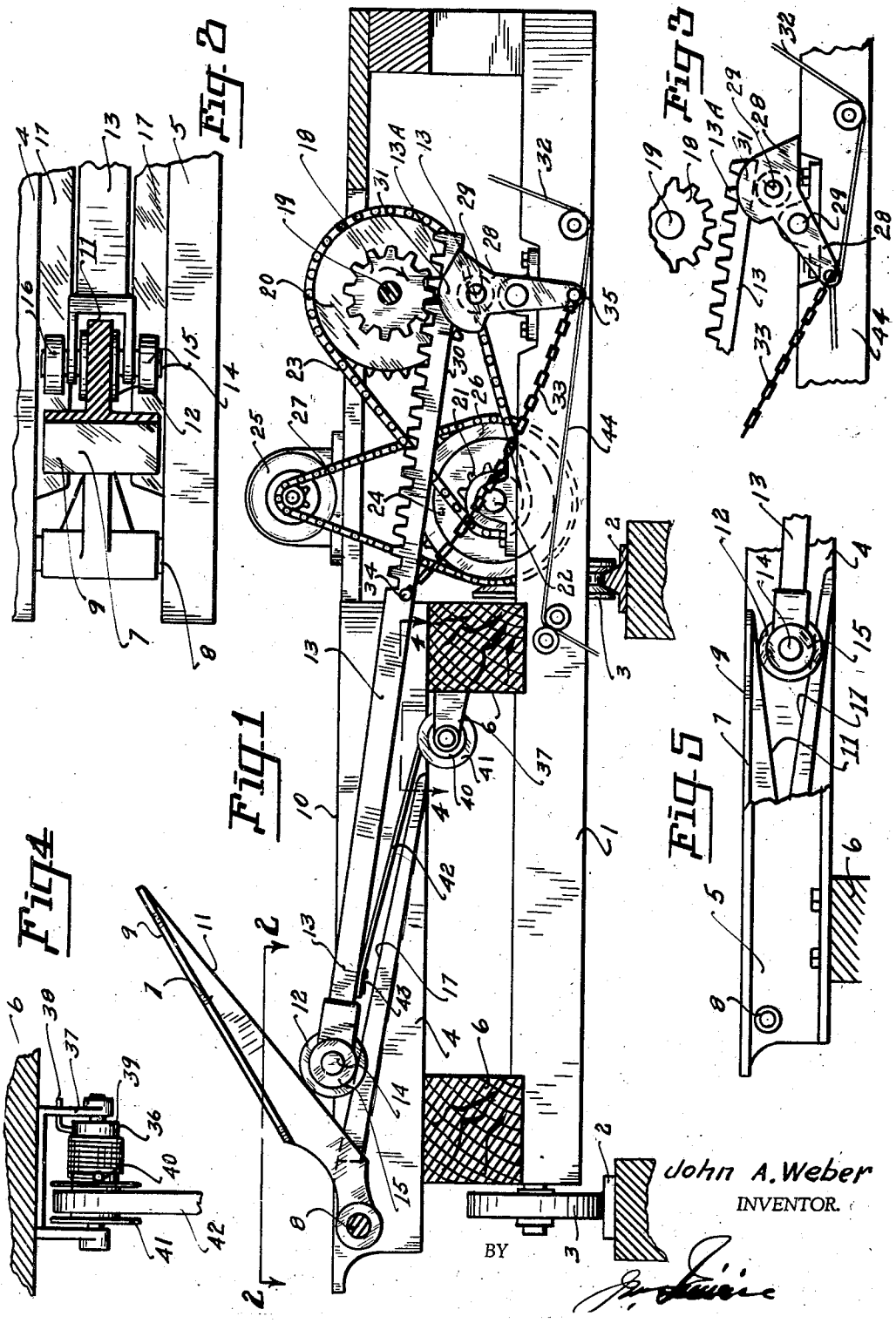
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LOG TURNER

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LOG TURNER

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9 Claims. (Cl. 143—97)

This invention relates to log turners, and the primary object of the invention is to provide a simple and powerful turner that can be operated by motor or by hydraulic means.

A further object of the invention is to provide a log turner that will automatically return to starting position after turning the log.

A still further object of the invention is to provide a log turner of such a design as to be readily adapted to present day log carriages.

These and other incidental objects will be apparent in the drawing, specifications and claims.

Referring to the drawing:

Figure 1 is a sectional view of a log carriage, having my new and improved log turner mounted thereon.

Figure 2 is a fragmentary plan view, taken on line 2—2 of Figure 1, of the log turner cam arm relative to the operating cam.

Figure 3 is a fragmentary view of the mechanism for disengaging the drive from the cam operating rack.

Figure 4 is a fragmentary elevation of the cam return mechanism, taken on line 4—4 of Figure 1.

Figure 5 is a fragmentary view of Figure 1, showing the log turner arm in down position.

In the drawing:

The saw mill carriage, of well known type, is indicated at 1, mounted upon tracks 2 and wheels 3. My invention consists of parallel cross frames 4 and 5 fixed to the saw mill beams 6, by any suitable means, as by bolting. A cam arm 7 is pivotally mounted on the shaft 8 located at the outer ends of the frames 4 and 5, and having its upper surface 9 in a plane with the upper surfaces 10 of the frames 4 and 5, as illustrated in Figure 5.

The cam surface 11 of the cam arm 7 rests upon the cam roller 12, which is journaled to the outer end of the rack 13 by the cross pin 14. The outer end of the rack is supported upon the cam rollers 15 and 16, travelling upon the cam surfaces 17 of the parallel frames 4 and 5. The rack 13 is operated by the pinion 18, the pinion 18 which is keyed to the countershaft 19. The countershaft has a sprocket 20 keyed thereto, which is driven by the sprocket 21 of the countershaft 22 through the chain 23.

The countershaft 22 forms part of a clutch assembly 24, which is not here shown in detail, but is of any suitable standard mechanism. A motor 25 is mounted on the carriage and drives the clutch assembly 24 through the sprocket 26 and chain 27. The teeth 13A of the rack 13 are maintained in working engagement with the pinion 18 by the pivotally mounted arm 28. A roller 29 is journaled within the arm 28 and supports the undersurface 30 of the rack 13. The arm 28 extends on either side of the rack at 31 and maintains the same in alignment with the pinion 18.

In the operation of my new and improved log turner, a control cable 32 positions the arm 28 in a vertical position as illustrated in Figure 1, engaging the rack 13 with the pinion 18. The clutch mechanism within the housing 24 is then operated to engaged position driving the sprocket 18 in the direction of the arrows, and operating the rack 13 to the position shown in Figure 1 and beyond, forcing the cam roller 12 along the surface 11 of the cam arm 7, at the same time the cam rollers 15 are riding up along the cam surface 17 of the framework 4 and 5.

The amount of travel will depend on how long the arm 28 is allowed to remain in a vertical position or the length of time that the clutch mechanism 24 is engaged. Under normal automatic operation a chain or cable 33 is fixedly secured at 34 to the rack and to the lower end 35 of the arm 28. When the rack is extended sufficient distance this chain will pull the arm 28 to the position shown in Figure 3, allowing the rack 13 to be disengaged from the driving pinion 18.

A return mechanism is indicated in Figure 4, wherein a spring 36, has one of its ends anchored to the supporting bracket 37 at 38, and its opposite end to the hub 39 at 40. A drum 41 is fixedly secured to the hub 39 and has a strap 42 fixedly secured thereto at its one end, having its opposite end fixedly secured to the rack at 43. As the rack 13 is driven outward operating the cam arm 7 the strap 42 will load the spring 36. When the rack is released from the pinion 18 the strap 42 will be wound about the drum 41 by the spring 36, returning the rack to the position shown in Figure 1, ready for another cycle of operation.

In the event it is desired to release the rack from the pinion 18 before the rack has reached its full outward travel, a hand operated cable 44 is provided which will throw the lever 28 to the off position as shown in Figure 3. It will be noted that when the rack 13 is first brought into action along the cam surface 11 of the cam arm 7 tremendous lifting power will be exerted, and after the rack progesses along the cam surfaces this lifting power will be somewhat reduced and transferred into a quick acting movement, which will turn the log rapidly on the latter part of the stroke and where less power is required to move the same. This is an outstanding feature of my invention.

The cam arm 7 can be operated by substituting a hydraulic cylinder in the place of the rack and pinion mechanism.

I do not wish to be limited to the exact mechanical construction as illustrated, as other mechanical equivalents may be substituted, still coming within the scope of my claims.

What I claim is:

1. A log turner, a turning bar, a rack bar to operate the turning bar, a power driven pinion to operate the rack bar, an element movable to provide for cooperating engagement or disengagement of the rack bar and pinion, means for operating said element at will to compel engagement between the rack bar and pinion, and means actuated solely in the movement of the rack bar for automatically operating said element to provide for disconnection between the rack bar and pinion following predetermined movement of the rack bar.

2. A log turner, a turning bar, a rack bar to operate the turning bar, a power driven pinion to operate the rack bar, an element movable to provide for cooperating engagement or disengagement of the rack bar and pinion, means for operating said element at will to compel engagement between the rack bar and pinion, and means actuated solely in the movement of the rack bar operated by the rack bar for automatically operating said element to provide for disconnection between the rack bar and pinion following predetermined movement of the rack bar.

3. A log turner, a turning bar, a rack bar to operate the turning bar, a power driven pinion to operate the rack bar, an element movable to provide for cooperating engagement or disengagement of the rack bar and pinion, means for operating said element at will to compel engagement between the rack bar and pinion, means actuated solely in the movement of the rack bar for automatically operating said element to provide for disconnection between the rack bar and pinion following predetermined movement of the rack bar, and means for manually operating the element at will to disconnect the rack bar and pinion.

4. A log turner, a turning bar, a rack bar to operate the turning bar, a power driven pinion to operate the rack bar, an element movable to provide for cooperating engagement or disengagement of the rack bar and pinion, means for operating said element at will to compel engagement between the rack bar and pinion, means for automatically operating said element to provide for disconnection between the rack bar and pinion following predetermined movement of the rack bar, and means for automatically reversing movement of the rack bar following a predetermined operative movement thereof.

5. A log turner including a frame, a log turning lever pivoted in such frame, an inclined track at one side of the lever, a rack bar movable on said trackway into contact with and for operating the lever, a power driven pinion normally out of cooperation with the rack bar, an element movable to cause the rack bar to engage or disengage the pinion, and a connection between the rack bar and element to move the latter to provide for disengagement of the rack bar and pinion following a predetermined movement of the rack bar.

6. A log turner including a frame, a log turning lever pivoted in such frame, an inclined track at one side of the lever, a rack bar movable on said trackway into contact with and for operating the lever, a power driven pinion normally out of cooperation with the rack bar, an element movable to cause the rack bar to engage or disengage the pinion, and a connection between the rack bar and element to move the latter to provide for disengagement of the rack bar and pinion following a predetermined movement of the rack bar, and a spring-controlled connection for moving the rack bar to an inoperative position relative to the lever when the element is in a position to provide for disconnection of the rack bar and pinion.

7. A log turner including a frame, a log turning lever pivoted in such frame, an inclined track at one side of the lever, a rack bar movable on said trackway into contact with and for operating the lever, a power driven pinion normally out of cooperation with the rack bar, an element movable to cause the rack bar to engage or disengage the pinion, and a connection between the rack bar and element to move the latter to provide for disengagement of the rack bar and pinion following a predetermined movement of the rack bar, and manually operable means to control the position of the element at will.

8. A log turner including a turning bar, a rack bar to operate the turning bar, a power driven pinion to operate the rack bar, an element movable into one position to move the rack bar in operative cooperation with the pinion or into another position to release the rack bar from such cooperation, manually operable means for moving the element selectively to either position, and a connection between the rack bar and element to cause the rack bar following a predetermined movement by the pinion to move the element to a position to provide for the disconnection of the rack bar and pinion.

9. A log turner including a turning bar, a rack bar to operate the turning bar, a power driven pinion to operate the rack bar, an element movable into one position to move the rack bar in operative cooperation with the pinion or into another position to release the rack bar from such cooperation, manually operable means for moving the element selectively to either position, and a connection between the rack bar and element to cause the rack bar following a predetermined movement by the pinion to move the element to a position to provide for the disconnection of the rack bar and pinion, and spring means tensioned in movement of the rack bar by the pinion and serving to move the rack bar in opposition to operative rack bar movement when the rack bar is disconnected from the pinion.

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