No. 806,349. PATENTED DEC. 5, 1905.

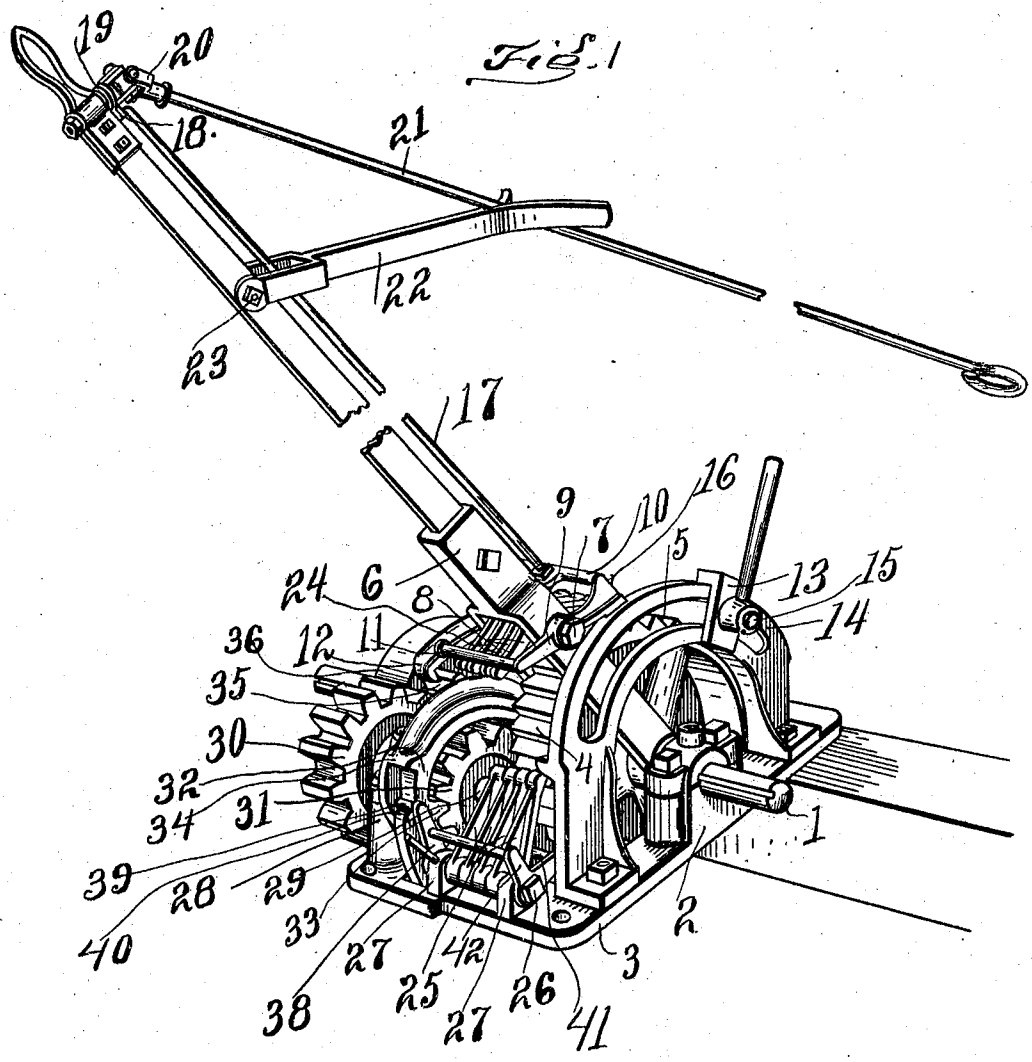
C. H. KNIGHT.

SAWMILL SET WORKS.

APPLICATION FILED FEB. 1, 1901.

4 SHEETS—SHEET 1.

Fig. 1



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4 SHEETS—SHEET 2.

Fig. 2

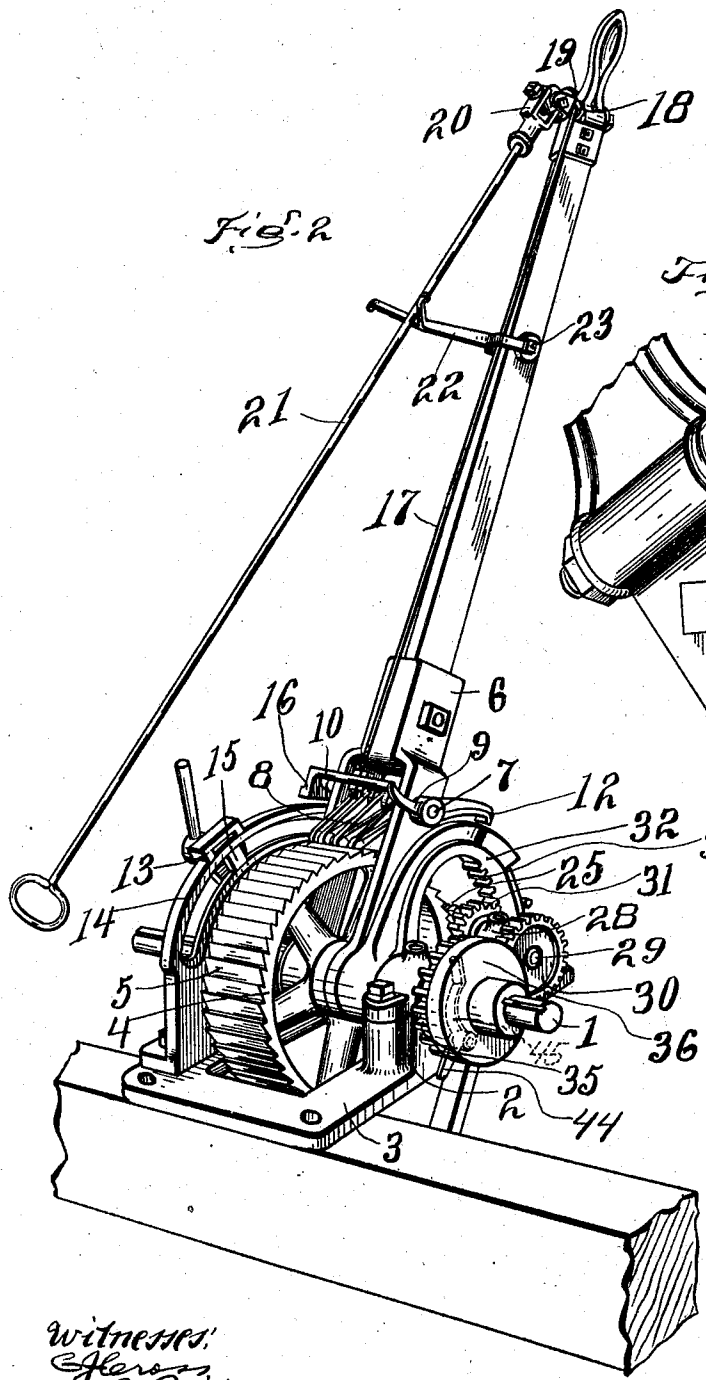
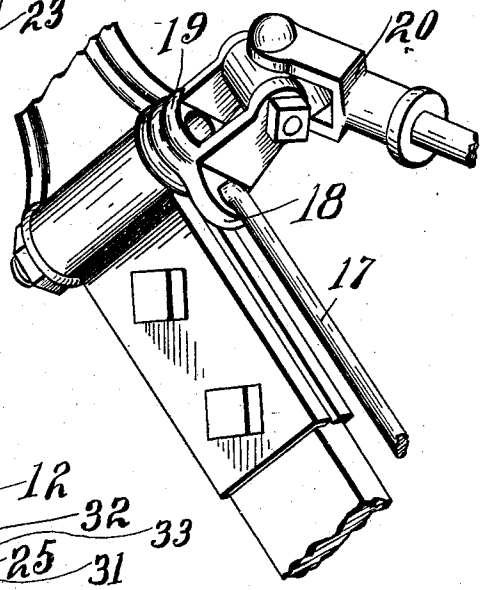


Fig. 3



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No. 806,349. PATENTED DEC. 5, 1905.

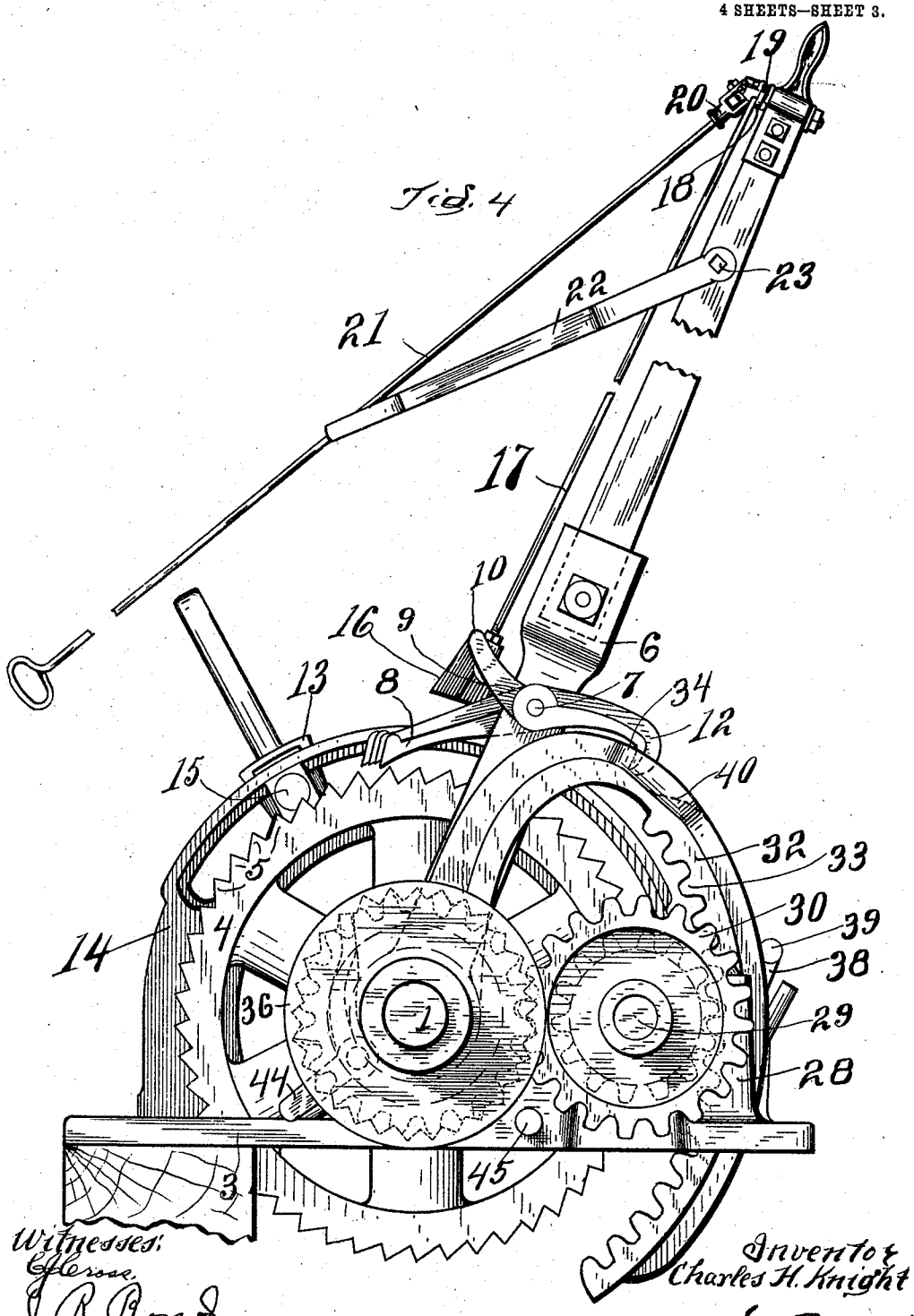
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SAWMILL SET WORKS.

APPLICATION FILED FEB. 1, 1901.

4 SHEETS—SHEET 3.

Fig. 4



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No. 806,349. PATENTED DEC. 5, 1905.

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SAWMILL SET WORKS.

APPLICATION FILED FEB. 1, 1901.

4 SHEETS—SHEET 4.

Fig. 5

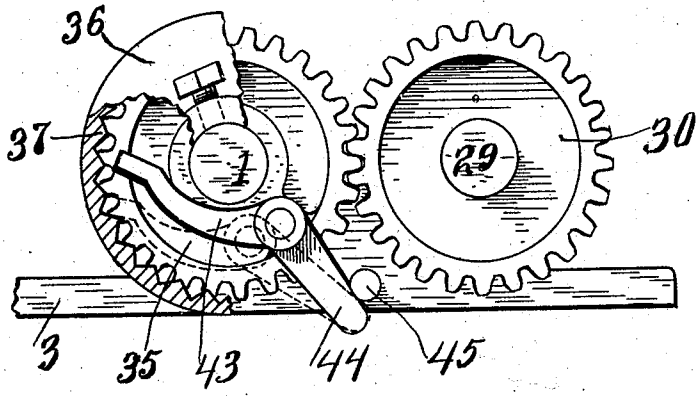


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES H. KNIGHT, OF CANTON, OHIO.

SAWMILL SET-WORKS.

No. 806,349. Specification of Letters Patent. Patented Dec. 5, 1905.

Application filed February 1, 1901. Serial No. 45,561.

To all whom it may concern:

Be it known that I, CHARLES H. KNIGHT, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Sawmill Set-Works; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a perspective view showing the different parts properly connected. Fig. 2 is a perspective view showing the device in the opposite position from that illustrated in Fig. 1. Fig. 3 is a view showing a portion of the top or upper end of the operating-lever and the different parts belonging thereto. Fig. 4 is a side elevation of the toothed wheel, showing the operating-lever in proper position, together with the reverse-pinion and its operating-segment. Fig. 5 is a side elevation of the reverse-pinions, showing a portion of the fixed ratchet-wheel and the clutch or detent. Fig. 6 is a vertical section of the tooth-wheel, illustrating a portion of the operating-lever and the different parts belonging thereto.

The present invention has relation to sawmill set-works; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claims.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, 1 represents the main shaft, which is properly journaled in suitable boxes, such as 2, said boxes being supported by a base or frame 3, which base or frame may be of any desired construction, as its only purpose is to provide a means for connecting the various parts of the set-works.

To the main shaft 1 is securely attached in any convenient and well-known manner the toothed wheel 4, which tooth-wheel is provided with the teeth 5, said teeth being located upon the periphery of the wheel and are of the ordinary construction.

Upon the main shaft 1 is loosely mounted the operating-lever 6, the bottom or lower end of which is bifurcated, one member thereof being located upon either side of the toothed wheel 4.

It will be understood that the main shaft 1 is to be provided with the ordinary pinions, which engage or mesh with racks to move the knees back and forth. This construction being common is not illustrated.

To the lower portion of the operating-lever 6 and at a point beyond the periphery of the toothed wheel 4 is connected the cross bolt or bar 7, and upon which cross bolt or bar 7 are located the dogs 8, said dogs being independently mounted upon the cross-bolt 7 and are for the purpose of engaging the teeth of the wheel 4.

Upon the cross bolt or bar 7 is mounted the rocking yoke 9, said rocking yoke being provided with the bars 10 and 11 and the hooked extension 12, said hooked extension being for the purpose hereinafter described.

When it is desired to move the toothed wheel 4 forward a given distance by means of the operating-lever 6, the dogs 8 will engage with the teeth of the wheel 4 and carry the wheel forward by the forward movement of the operating-lever 6, and for the purpose of limiting the forward movement of the toothed wheel 4 to a given point the stop block or head 13 is provided and is adjustably connected to the segment 14 by means of the clamp-bolt 15. As the operating-lever 6 is brought forward it carries with it the rocking yoke 9, thereby causing the arm 16 to come in contact with the stop block or head 13. When it is desired to lift the dogs 8 out of engagement with the teeth of the toothed wheel 4, the front or forward end of the rocking yoke 9 is elevated by means of the rod 17, said rod 17 being pivotally connected at its upper end to the flange 18, formed upon the swiveled head 19, said swiveled head being connected to the free end of the operating-lever 6, substantially as shown in Fig. 3, and to the swiveled head 19 is pivotally connected the yoke or head 20, to which yoke or head is connected in any convenient and well-known manner the handle 21, said handle being formed of proper length to operate the operating-lever 6, and for the purpose of holding the handle 21 at the desired angle the forked carrier-arm 22 is provided, said carrier-arm being held at the desired angle by means of the clamping-bolt 23. It will be understood that when the handle 21 is turned axially in one direction it will move the flange 18 upward, carrying with it the rod 17, which in turn moves the rocking yoke 9 upward with its forward motion and brings the cross-

bar 11 of the yoke 9 down and upon the rearward-extending portions 24 of the dogs 8, said rearward-extending portions 24 being formed integral with the dogs 8.

It will be understood that when the dogs 8 are brought or lifted out of contact with the teeth of the wheel 4 the oscillating movement of the lever 6 will be independent of the wheel 4 and that as the dogs move they will clear the teeth of said wheel and have no operative effect upon said wheel.

For the purpose of preventing any accidental rotation of the main shaft 1 during the time a log is being placed upon the carriage or for any other reason the locking-dogs 25 are provided, which locking-dogs are loosely and independently mounted upon the bar 26, said bar being connected to the flanges 27 or their equivalents.

To the base or frame 3 is connected the box 28, said box being for the purpose of providing the suitable bearing for the shaft 29, to which shaft are securely connected in any convenient and well-known manner the pinions 30 and 31, said pinions being located and arranged substantially as shown in Figs. 1 and 2 and are for the purpose hereinafter described.

Upon the main shaft 1 is loosely mounted the toothed segment or curved arm 32. The teeth 33 of the toothed segment 32 mesh with the pinion 31, substantially as shown in Figs. 1, 2, and 4. When the bar 11 of the rocking yoke 9 is moved downward, it carries with it the hooked extension 12, by which downward movement of the hooked extension 12 the shoulder 34 of the toothed segment 32 is brought into engagement therewith, and when the operating-lever 6 is moved forward it will carry with it the toothed segment 32, which in turn imparts rotary motion to the pinions 31 and 30.

Upon the main shaft 1 is loosely mounted the pinion 35, which pinion meshes with the pinion 30. Upon the main shaft 1 is securely mounted the ratchet-wheel 36, the teeth 37 of said ratchet-wheel 36 being located upon the inner periphery thereof, as illustrated in Fig. 5, said ratchet-wheel being shown in said figure partially broken away to better illustrate the relative position of the pinions 35 and 30.

For the purpose of lifting the locking-dogs 25 out of engagement with the toothed wheel 4 when it is desired to move the toothed segment 32 with the forward movement of the operating-lever 6 the arm 38 is provided, which arm is provided with the pin 39, said pin normally resting upon the cam 40; but when the toothed segment 32 is moved forward the pin 39 is carried outward by the cam 40, which in turn moves the dogs 25 away from the toothed wheel 4 by means of the cross-bar 41, which cross-bar is connected to the rocking frame 42, said rocking frame 42 being mounted upon the same bar that the dogs 25 are mounted upon. It will be understood that when the dogs 25 are released from the toothed wheel 4 said toothed wheel is free to move backward, as hereinafter described and for the purpose pointed out.

To the pinion 35 is pivotally attached the pawl 43, which pawl 43 is provided with the integral arm 44, and for the purpose of lifting the pawl 43 out of engagement with the teeth of the ratchet-wheel 36 the stop-pin 45 is provided, which stop-pin is secured to the base 3 or its equivalent.

When it is desired to rotate the main shaft 1 in a backward direction, or, in other words in the opposite direction from that employed in setting the log for a new cut, the operating-handle 21 is turned axially, so as to bring the dogs 8 out of engagement with the teeth 4, as heretofore described, at which time the hooked extension 12 is engaged with the shoulder 34 of the toothed segment 32, and as the operating-lever 6 is moved forward it carries with it the toothed segment 32, which in turn imparts a rotary motion to the pinion 31 and also to the pinion 30, thereby imparting an opposite rotary motion to the pinion 35, and as the pinion 35 rotates it carries the rearward-extending arm 44 away from the pin 45, at which time the pawl 43 is free to drop and engage one of the teeth 37 of the ratchet-wheel 36, at which time the ratchet-wheel 36 rotates with the pinion 35, and by securely attaching the ratchet-wheel 36 to the main shaft 1 said main shaft will rotate with the ratchet-wheel. After the operating-lever 6 has been moved forward the desired distance it is given a backward movement, which backward movement rotates the pinions 30, 31, and 35 in the opposite direction, the pinion 35 at this time turning upon the main shaft 1 and allowing the pawl 43 to pass over the teeth 37 of the ratchet-teeth 36 until the arm 44 comes in contact with the pin 45 at which time the pawl 43 is lifted upward at its free or outer end and out of engagement with the teeth 37.

It will be understood that by rotating the operating-handle 21 so as to bring the hooked extension 12 into engagement with the toothed segment 32 and at the instant the toothed segment 32 starts forward with the operating-lever 6 the locking-dogs 25 are thrown out of engagement with the teeth of the wheel 4 by the forward movement of the cam 40, thereby imparting a rocking motion to the frame 42 and lifting the dogs 25 by means of the cross-bar 41.

It will be understood that by my peculiar arrangement I am enabled to rotate the main shaft in either direction by imparting a forward and backward movement to the operating-lever 6 and that I am also enabled to change the direction of rotation by giving to the operating-handle 21 an axially movement,

by which arrangement a change of rotation of the main shaft is imparted without any change of the operating-lever 6.

For the purpose of allowing a full movement to be given to the operating-lever 6 at the time when it is desired to rotate the main shaft 1 in the direction to set the knees back upon the carriage the stop-arm 16 is moved upward or away from the periphery of the segment 14 a distance sufficient to allow said stop-arm 16 to pass over and beyond the stop-block 13; but when the toothed wheel 4, together with the main shaft 1, is to be moved forward with the forward movement of the operating-lever 6 the arm 16 rides upon or comes in close contact with the periphery of the segment 14, by which arrangement the stop block or head 13 is located in the path of the arm 16, this arrangement being necessary to stop the forward movement of the main shaft 1 at any predetermined point.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a sawmill set-works, a main shaft having fixed thereto a ratchet-wheel, an opertaing-lever located upon the main shaft, dogs carried by said operating-lever, a rocking yoke provided with a hooked arm, a toothed segment loosely mounted upon the main shaft, and provided with a shoulder adapted for engagement with a hooked arm, a pinion meshing with the toothed segment, and said pinion meshing with a pinion located upon the main shaft and adapted to rotate said pinion, substantially as and for the purpose specified.

2. In a sawmill set-works, a main or operating shaft provided with a fixed toothed wheel, an operating-lever loosely mounted upon the main shaft, a cross-bolt connected to the bifurcated end of the operating-lever, dogs located upon the cross-bolt and adapted to engage the toothed wheel, a rocking yoke carried by the operating-lever and connected to the cross-bolt, a toothed segment loosely mounted upon the main shaft, means for operatively connecting the toothed segment with the forward movement of the operating-lever, and means for lifting the dogs carried by the operating-lever out of engagement with the toothed wheel and intergearing pinions, one engaging the segment and the other driving the set-shaft to rotate the power-shaft and tooth-wheel in a reverse direction from the direction rotated by the dogs carried by the operating-lever, substantially as and for the purpose specified.

3. In a sawmill set-works the combination of a main shaft having fixed thereto a toothed wheel, an operating-lever loosely mounted upon the main shaft, dogs carried by the operating-lever and adapted to engage the toothed wheel, a toothed segment or curved arm loosely mounted upon the main shaft, a pinion to engage the teeth of the segment, a pinion loosely mounted upon the main shaft and provided with a pawl, said pawl provided with an integral arm, a stop-pin adapted to actuate the pawl, locking-dogs loosely mounted upon a bar held in fixed position, and means for lifting the dogs out of engagement with the toothed wheel, substantially as and for the purpose specified.

4. In a sawmill set-works, a main shaft provided with a ratchet-wheel, an operating-lever loosely mounted upon the main shaft, a rocking yoke carried by the operating-lever, dogs actuated by the rocking yoke, a bar provided with dogs, said dogs adapted to lock the ratchet-wheel and main shaft against movement in one direction, a toothed segment mounted upon the main shaft and provided with a shoulder and a pinion engaged with the teeth of the segment and geared to the main shaft, a hooked arm carried by the lever and adapted to engage the shoulder of the segment, a cam located upon the toothed segment, and a pin adapted for engagement with the cam upon the toothed segment, said pin secured to an arm and the arm fixed to the bar having the dogs adapted to lock the ratchet-wheel against rotation, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHARLES H. KNIGHT.

Witnesses:
J. A. JEFFERS,
J. R. BOND.