

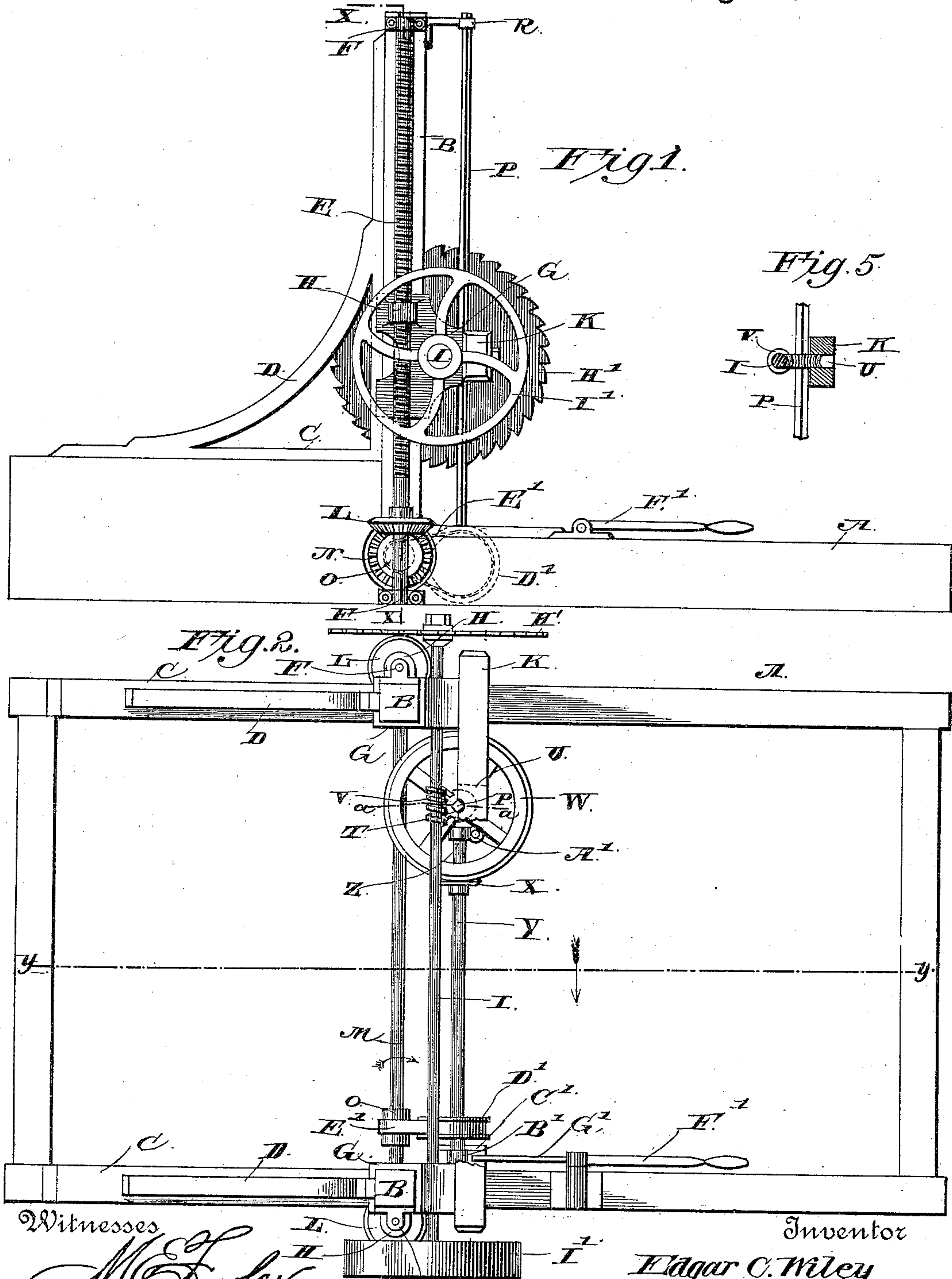
(No Model.)

2 Sheets—Sheet 1.

E. C. WILEY.  
CIRCULAR SAW MILL.

No. 409,261.

Patented Aug. 20, 1889.



Witnesses

*M. E. Fowler*  
*J. G. Garner*

Inventor

*Edgar C. Wiley*

By *his* Attorneys

*C. A. Shaw & Co.*

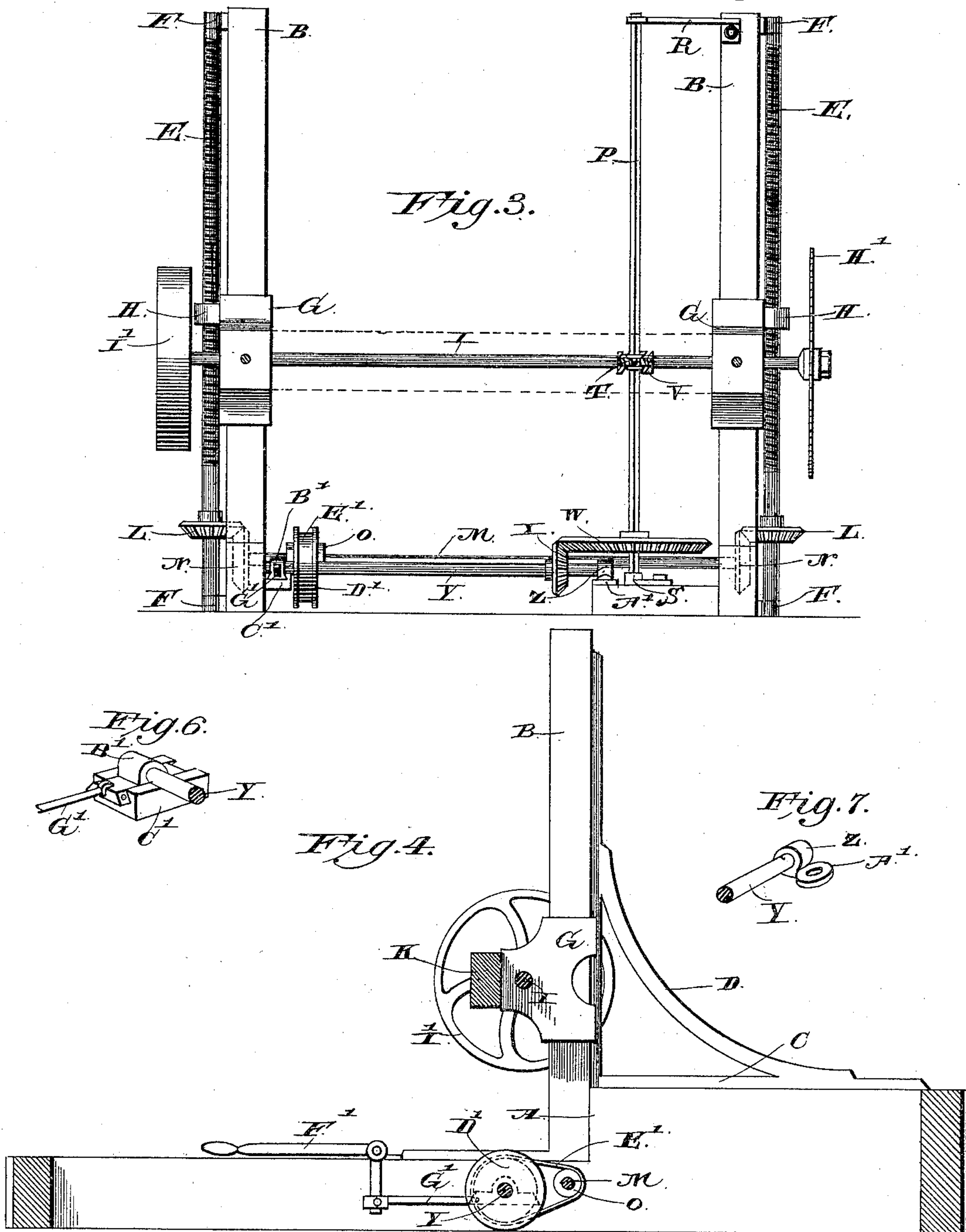
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*C. Howland*



# UNITED STATES PATENT OFFICE.

EDGAR CLARENCE WILEY, OF INDEPENDENCE, VIRGINIA.

## CIRCULAR-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 409,261, dated August 20, 1889.

Application filed December 1, 1888. Serial No. 292,361. (No model.)

*To all whom it may concern:*

Be it known that I, EDGAR CLARENCE WILEY, a citizen of the United States, residing at Independence, in the county of Grayson and State of Virginia, have invented a new and useful Improvement in Circular-Saw Mills, of which the following is a specification.

My invention relates to an improvement in circular-saw mills; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

This invention is an improvement on the saw-mill described in Letters Patent of the United States No. 391,444, granted to me October 23, 1888; and the object of my present improvement is to provide screws and improved mechanism for raising and lowering the saw-arbor in lieu of the rack-and-pinion mechanism described in my before-mentioned Letters Patent.

In the drawings, Figure 1 is an elevation of a circular-saw mill embodying my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse section taken on the line *xx* of Fig. 1. Fig. 4 is a longitudinal section taken on the line *yy* of Fig. 2. Fig. 5 is a detail sectional view taken on the line *aa* in Fig. 2, through the beam K, the worm-wheel, and the saw-arbor. Fig. 6 is a detail view of the adjusting mechanism for the adjustable end of the shaft Y. Fig. 7 is a detail view showing the pivoted bearing of the shaft Y.

A represents the saw-frame, which is of the usual or any suitable construction, and B represents a pair of vertical standards, which are secured on the upper sides thereof. The standards are provided at their lower ends, on their rear sides, with horizontally-extending foot-plates C, which are formed integrally with the said standards, and are bolted on the upper side of the frame, and said standards are further provided on their rear sides with curved braces D, which connect them with the foot-plates. On the outer side of each standard is arranged a vertical screw E, having its upper and lower ends journaled in bearings F at the upper and lower ends of the standards.

G represents a pair of blocks, which are

guided and adapted to slide vertically on the standards, and are each provided with a boss or projection H, having a threaded vertical opening that engages one of the screws E. The saw-arbor I is journaled in the blocks G, and the latter are connected together by a horizontal transverse beam H K. Near the lower end of each screw E is secured a beveled pinion L.

M represents a transverse shaft, which is journaled in suitable bearings in the frame A, and is provided near its ends with beveled gear-wheels N that engage the pinions L. The said shaft is further provided with a pulley O, of suitable diameter.

P represents a vertical shaft, angular in cross-section, which has its upper end journaled in a bracket-arm R, extending inward from the upper end of one of the standards, and has its lower end stepped in a bearing S. On this shaft is fitted a worm-wheel T, which has an angular central opening to receive the shaft, and is thereby adapted to move vertically thereon and to rotate therewith. This wheel is arranged and supported to a horizontal slot or opening U of the beam K, and engages at all times the worm V, that is secured on the saw-arbor I. Near the lower end of the shaft P is secured a beveled gear-wheel W, of suitable diameter, which is adapted to engage a beveled pinion X, that is rigidly secured on a counter-shaft Y. The latter has its inner end journaled in the arms of a pivoted bearing A', and has its outer end journaled loosely in a block B', which is guided on a base-plate or slideway C'; also secured to the shaft Y and ranged with the pulley O is a larger pulley D', which is connected to the pulley O by a slack endless driving-belt E'.

From the foregoing description it will be obvious that when the block B' is moved in one direction to cause the shaft Y to swing laterally toward the shaft M and the block Z thereof to turn on its pivot the belt E' will be slackened. When the said shaft Y is moved in the opposite direction, its pinion X will remain engaged with the wheel W, and the belt E' will become tightened between the pulleys O D'.

E' represents a right-angled lever pivoted to the frame A and connected to the sliding



block B' by a link G', the function of this lever and link being to operate the sliding block in the manner just described. To one end of the saw-arbor is attached a circular saw H', and to the opposite end of the arbor is secured a driving belt-pulley I'.

This improved saw-mill, like that described in my previous patent, is adapted to saw logs that are too large for the saw to pass entirely through them, and that hence cannot be sawed at a single operation, and the operation of my hereinbefore-described apparatus for raising and lowering the saw is as follows: The saw-arbor being connected to the shaft P by the worm-gears, the latter and the shaft Y geared thereto are in constant rotation when the saw-arbor is revolving. In order to raise the saw, the operator moves the lever F' in such manner as to cause the latter to move the shaft Y to tighten the belt E', and thereby cause the shaft M to rotate in the direction indicated by the curved arrow in Fig. 2, and thereby cause the gears L N, which connect said shaft to the screws E to turn the latter to the left and thereby move the blocks H upward on the standards. When the saw has been elevated to the desired extent, the operator causes the lever F' to restore the shaft Y to its initial position, with the belt E' slack and the pulleys D' out of engagement with the pulley O. After the saw has passed through the upper side of the log and the saw-carriage has been backed and it is necessary to lower the saw to cause it to operate in the lower half of the log, the operator moves the shaft Y, by means of the lever F', and causes the belt E' to slacken and the pulley D' to engage the pulley O by frictional contact, and thereby reverse the rotation of the shaft M, and consequently reverse the rotation of the screws E.

Having thus described my invention, I claim—

1. The combination, in a saw-mill, of the vertical standards, the blocks sliding thereon, the screws to raise and lower the blocks, the beam K, connecting the blocks together, the saw-arbor journaled in the said blocks and having the worms V, the shaft P, the loose worm-wheel T thereon engaging the worm V and supported by beam K, the shaft Y, journaled in movable bearings geared to the shaft P and having the pulley D', the shaft M,

geared to the screws and having the pulley O, and the belt connecting the pulleys O and D', substantially as described.

2. The combination, in a saw-mill, of the vertically-movable bearing-blocks carrying the saw-arbor having a worm formed thereon, the transverse beam connecting the bearing-blocks and having a recess, a worm-wheel supported in said recess engaging the worm upon the saw-arbor and moving vertically upon an angular shaft, the vertical screws supporting and extending through threaded openings in the bearing-blocks, and mechanism for transmitting rotary motion in either direction to said screws from the angular shaft carrying the worm-wheel, substantially as herein set forth.

3. The combination of the shaft P, having gear W, the shaft Y, journaled in movable bearings and having the pinion X engaging wheel W and the pulley D' the elevating-screws, the shaft M, geared thereto and having the pulley O, the endless belt connecting the pulleys O D' and the lever to engage the pulley D' with pulley O and slacken the belt and to move pulley D' from pulley O and tighten the belt, whereby the screws may be rotated in either direction, substantially as described.

4. The combination of the vertical angular shaft having the vertically-movable worm-wheel engaging a worm upon the saw-arbor, a counter-shaft having its inner end journaled in a pivoted and its outer end in a sliding bearing, a pinion near the inner end of said counter-shaft meshing with a bevel-gear upon the lower end of the angular shaft, a transverse shaft geared to the lower ends of a pair of screws having vertically-movable blocks in which the saw-arbor is journaled, drums or pulleys upon the said transverse shaft and near the outer adjustable end of the counter-shaft, and a lever to adjust the sliding bearing of said counter-shaft, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

EDGAR CLARENCE WILEY.

Witnesses:

JOHN W. THOMAS.

M. CASSTEVENS.