

D. RAWSON, dec'd.

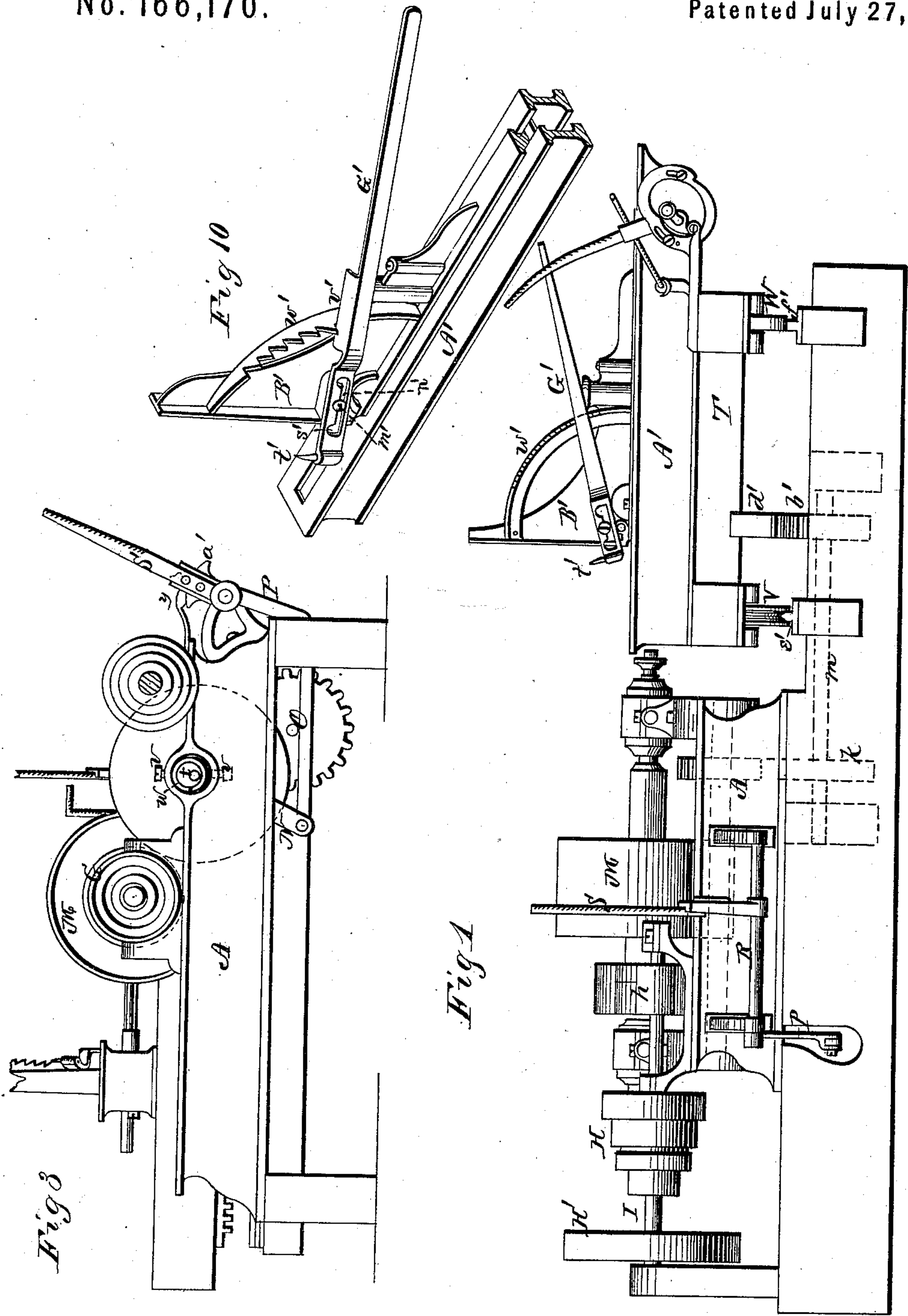
2 Sheets--Sheet 1

F. N. WHITCOMB, W. E. DAVIS & MARY S. RAWSON, Adm's.

Circular Saw-Mill.

No. 166,170.

Patented July 27, 1875.



WITNESSES
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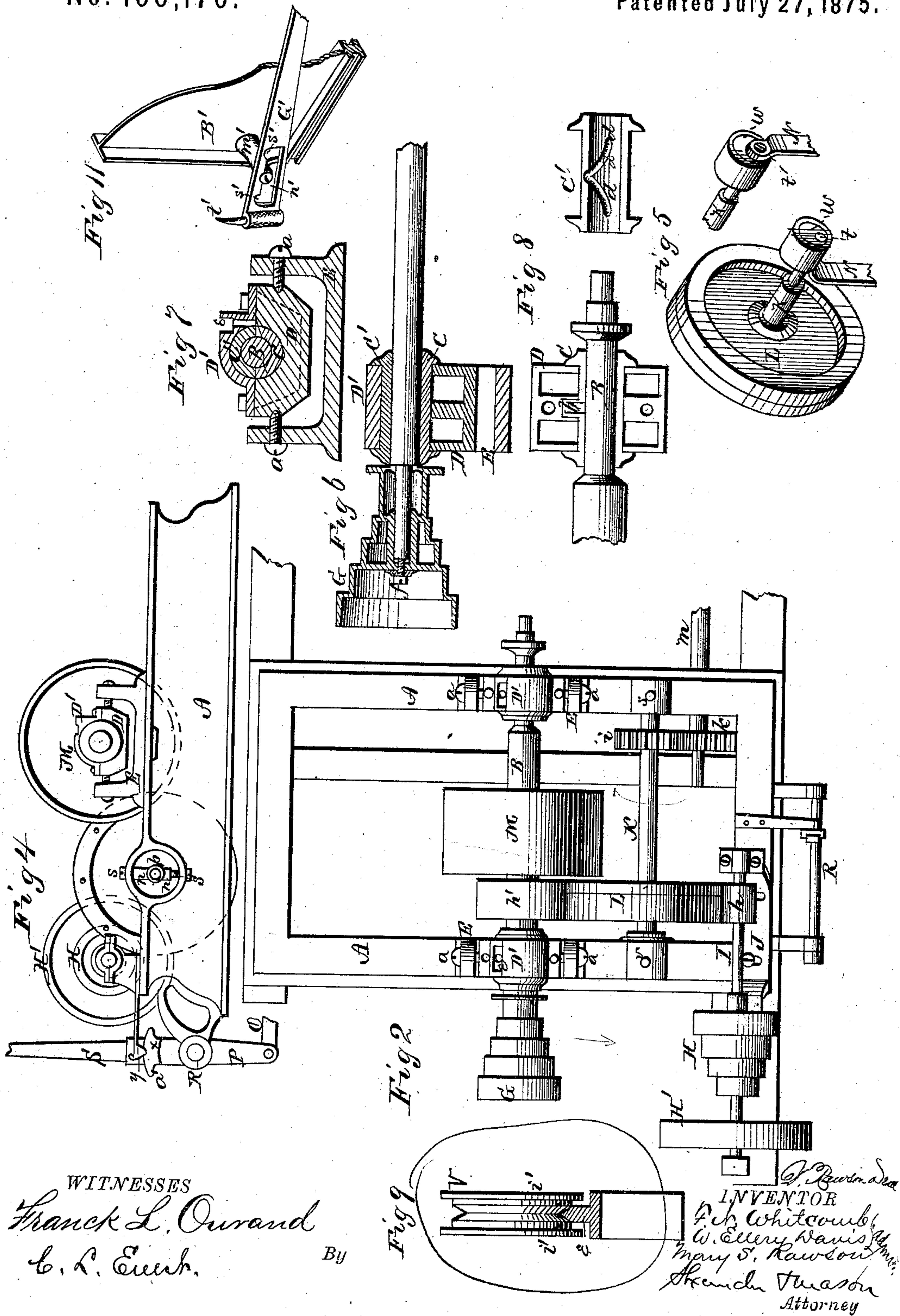
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UNITED STATES PATENT OFFICE.

FRANCIS N. WHITCOMB, OF AMITY, AND W. ELLERY DAVIS AND MARY J. RAWSON, OF BELMONT, NEW YORK, ADMINISTRATORS OF DAVID RAWSON, DECEASED.

IMPROVEMENT IN CIRCULAR-SAW MILLS.

Specification forming part of Letters Patent No. **166,170**, dated July 27, 1875; application filed March 25, 1875.

To all whom it may concern:

Be it known that FRANCIS N. WHITCOMB, of Amity, Orange county, State of New York, and DAVID RAWSON, late of Belmont, Allegany county, State of New York, did invent certain new and useful Improvements in Circular-Saw Mills; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of this invention consists in the construction and arrangement of a saw-mill, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which this invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a rear elevation of the saw-mill with log-carriage. Fig. 2 is a plan view of the same without the log-carriage. Fig. 3 is a side elevation of the saw-mill. Fig. 4 is a view of the other side of the same. Fig. 5 is a view showing a part of the feeding mechanism. Fig. 6 is a section showing the saw-arbor and conical pulley thereon. Figs. 7 and 8 show the journal-box in which the saw-arbor revolves. Fig. 9 is an enlarged view of one of the log-carriage wheels, with the rail on which it rides. Fig. 10 is a perspective view of the head-block; and Fig. 11 is a perspective view, showing a modification in the construction of the head-block.

A represents the frame of the saw-mill, and B is the saw-arbor. The arbor B is formed with suitable journals, on each of which is placed a sleeve made in two parts, C and C'. This sleeve is placed in a journal-box, also made in two parts, D and D'. On each side of the frame A, on the top, is secured a stand, E, in which the bottom part D of the journal-box is suspended by means of screw-pivots *a*. This part of the box is formed with one or more recesses, as shown in Figs. 6 and 8, for the purpose of tightening the same. The part C of the sleeve is provided on one side, in the center, with a projection, *b*, which fits in a

recess in the metal of the box D, and is grooved on its upper side, as shown. In the inner side of the upper part C' of the sleeve are oil-grooves *d d*, curved from the center of one edge upward and outward toward the ends. The top part D' of the box is secured to the bottom part D by screws, and is formed with an oil-chamber, in which suitable wicking is placed to be saturated with oil. The oil drops through an aperture in the chamber into the groove on the projection *b* to the journal within the sleeve C C'. The revolution of the journal carries up the oil, and distributes it through the grooves *d d*. The sleeve C C' is at its ends provided with circumferential flanges, to prevent any end movement of the same in the box. On the outer end of the saw-arbor B is fastened a conical pulley, G, of ordinary construction, said pulley being first adjusted by means of an end screw, *f*, as shown in Fig. 6, so as to adjust the saw-arbor out or in, as required. The pulley G is, by a belt, connected with a similar pulley, H, on the counter-shaft I, which is held in suitable boxes on an adjustable bearing-plate, J, attached to the frame A. The saw-arbor, by means of its adjustable boxes D D', may be turned in either direction from the line at right angles with the log-carriage, so as to cant the saw in either direction, as may be required. On the counter-shaft I is a smooth friction-pulley, *h*, of small diameter, and on the saw-arbor B is a similar pulley, *h'*, of larger diameter. Between and below the saw-arbor B and counter-shaft I is another counter-shaft, K, upon which is secured a friction-pulley, L, and a pinion, *i*. This pinion meshes with a pinion, *k*, on a shaft, *m*, for driving the log-carriage. The shaft K is movable, by means that will be hereinafter described, so as to throw the pulley L against either of the pulleys *h* or *h'*, or hold it between them without touching either.

The saw-arbor is revolved by means of a belt from the engine around a pulley, M, on the arbor. When the pulley L is thrown in contact with the pulley *h*, motion is communicated, through the conical pulleys G H, shaft I, pulleys *h* L, shaft K, gears *i k*, and shaft *m*,

to the log-carriage, for feeding the same forward, the speed being regulated by the position of the belt on the conical pulleys G H. By changing the pulley L, so as to be in contact with the pulley h' , the motion is communicated in a reverse direction directly to the shaft K, and through the gears $i k$ and shaft m to the log-carriage, for running the same rapidly back again. When the pulley L is held without touching either of the pulleys $h h'$, the log-carriage will remain stationary. The inner end of the shaft K has its bearing in a tubular box or bearing, p , provided on its upper and lower sides with vertical projections $n n$, which are held upon screw-pivots $s s$, so that the box p can turn in a horizontal plane, to correspond with the movement of the outer end of the shaft K. This end of the shaft has its bearing eccentrically in a circular box, t , which revolves partially in a collar, w , held by means of set-screws $v v$ at the top and bottom. The eccentric box t is secured to a lever, N, the lower end of which is, by a bar or rod, O, connected with an arm, P, projecting downward from one end of a shaft, R, which is held in suitable bearings attached to one end of the frame A. To the shaft R is secured a lever, S, on the side of which is a segment, a' , with a notch, x , in the center. On the frame A is secured a spring-hook, y , which takes into the notch x on the segment a' , to hold the lever and shaft with the parts attached thereto in such a position that the pulley L will be out of contact with either pulley h or h' , and thus not feed the log-carriage. By throwing the lever S outward the pulley L is, by the eccentric box t , thrown in contact with the pulley h' on the saw-arbor, so as to run back the carriage; and by throwing the lever forward the pulley L will be thrown in contact with the pulley h on the counter shaft I, so as to feed the carriage forward. On the feed-shaft m is a pinion, b' , which takes into a rack-bar, d' , on the under side of the log-carriage T. The carriage is provided with wheels V and W, running upon rails e' and f' , respectively. The rail f' has a flat upper surface, and the wheels W have a smooth and flat periphery to run thereon. The rail e' has perpendicular sides, and the upper edge is V-shaped—that is, beveled inward and upward, equally on both sides, from the top of the perpendicular portions of the sides, as shown in Fig. 9. The wheels V are each formed with a circumferential V-shaped groove to fit over the V-shaped edge of the rail e' , and on each side thereof is a projecting circumferential flange, i' , to be close to the perpendicular sides of the rail. The rail e' is nearest to the saw, and by the construction of said rail and the wheels V running thereon the carriage is prevented from slipping off, or being forced off of the rails. A' represents one of the head-blocks on the carriage T, and B' is the movable knee thereon, operated by any suitable means. On

the side of the knee B' is a stud, m' , on which is placed a lever, G', having a slot, n' , for the passage of the stud. In the upper part of this slot are notches s' for the lever to drop down over the stud, which then acts as a fulcrum, on which the lever may be turned. At the inner end of the lever G' is a point or pin, t' , projecting upward, as shown. This lever and point are used to hold the log, and the lever can be extended forward or drawn back, according to the size of the log. The lever is held in any position by means of a segmental ratchet, w' , and flange v' , as shown.

The stud m' may be of any length required, so as to hold the lever close to the knee, as shown in Fig. 10, or away from it, as shown in Fig. 11. On the shaft I is secured a heavy or weighted wheel, H', which runs in the opposite direction from the saw, and always one way. The object of this wheel is to keep up the motion of the feed-shaft when the large friction-wheel is thrown upon the small friction-wheel h for the purpose of feeding; otherwise the action, being so sudden, would cause the feed-belt to slip and run off; but this wheel to assist, no perceivable check can be seen in the motion of the feed-shaft.

Having thus fully described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a saw-mill, the conical pulley G, adjusted upon the end of the saw-arbor B by the end screw f , as and for the purposes herein set forth.

2. The tubular box or bearing p , provided with a vertical projection, n , on its upper and lower side, and held by vertical screw-pivots s , to form the self-adjusting bearing for the inner end of the counter-shaft K, substantially as and for the purposes herein set forth.

3. The combination of the counter-shaft K, eccentric bearing-box t , and the collar or sleeve w , held by the vertical pivot-screws v , substantially as and for the purposes herein set forth.

4. The combination of the eccentric bearing-box t , lever N, connecting-bar O, shaft R, with arm P and lever S, the segment a' , with notch x , and the spring-hook y , all substantially as and for the purposes herein set forth.

5. In combination with the knee of a head-block for saw-mills, the stud m' and the lever G', secured near the bottom of the knee, and provided with slot n' , notches s' , point t' , and flange v' , and the curved notched ratchet w' , substantially as and for the purposes herein set forth.

In testimony whereof we have hereunto set our hands this 22d day of January, 1875.

F. N. WHITCOMB,

W. ELLERY DAVIS,

MARY J. RAWSON,

Administrators.

Witnesses:

C. L. EVERT,

W. A. SKINKLE.