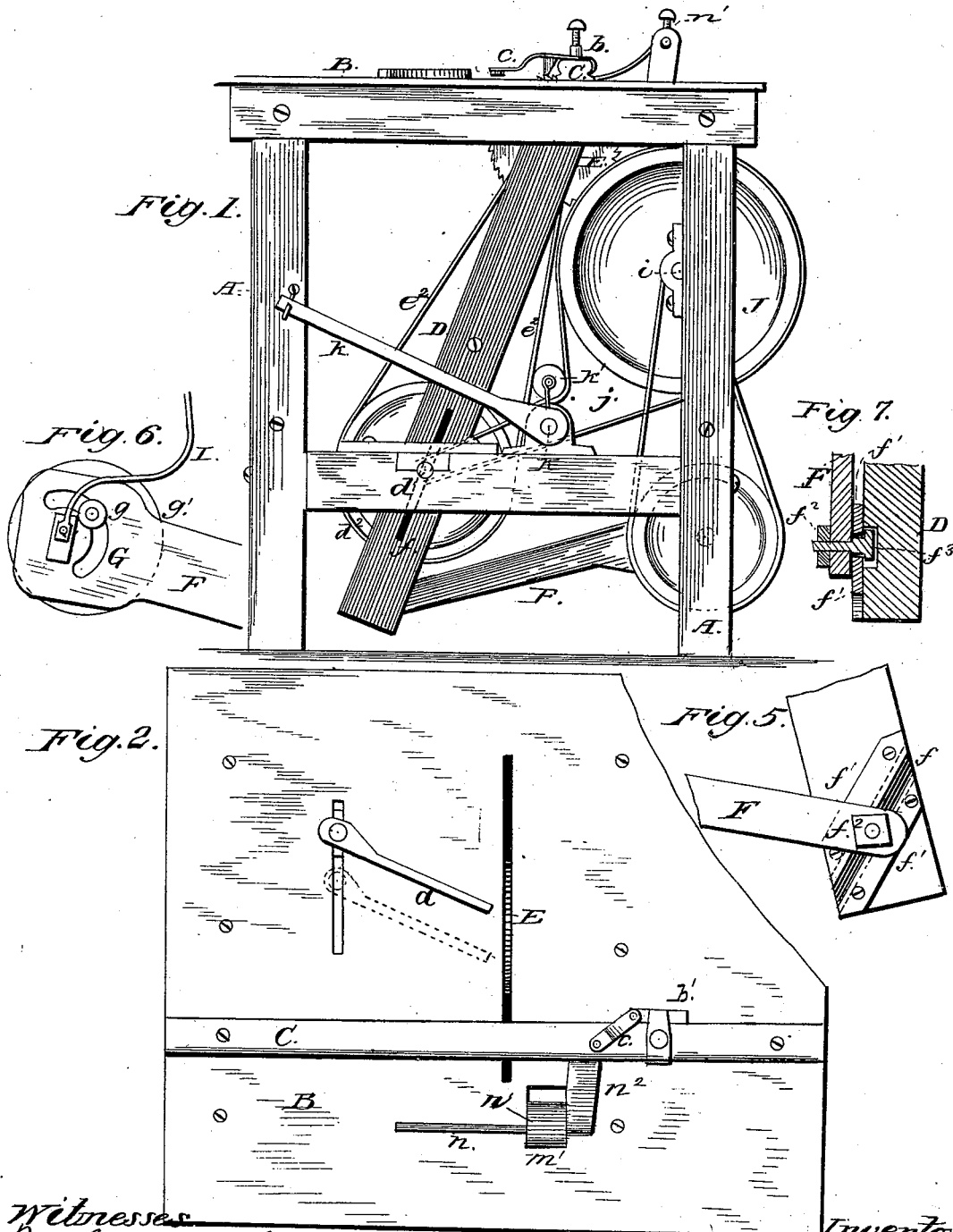


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Circular-Sawing Machine.

No. 217,957.

Patented July 29, 1879.



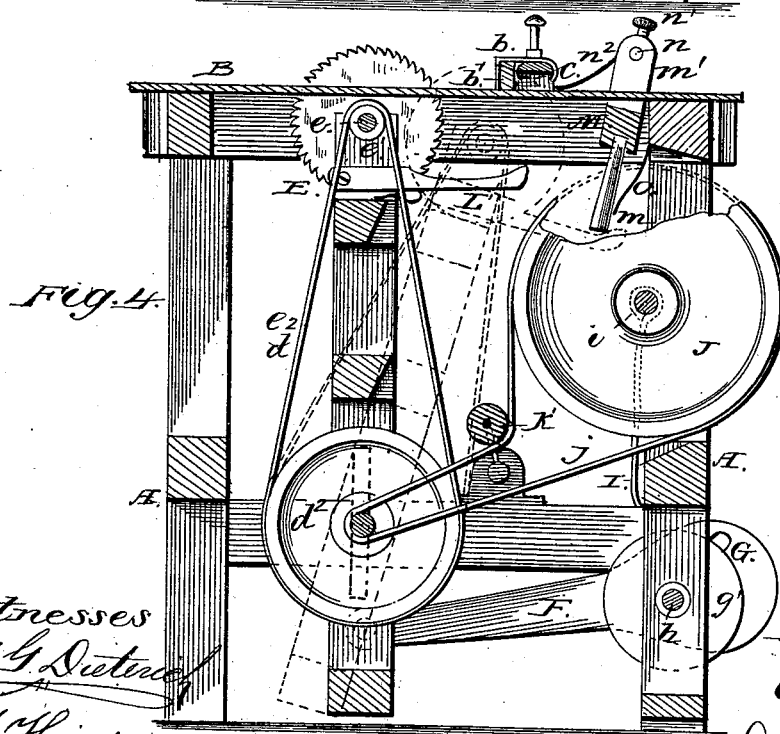
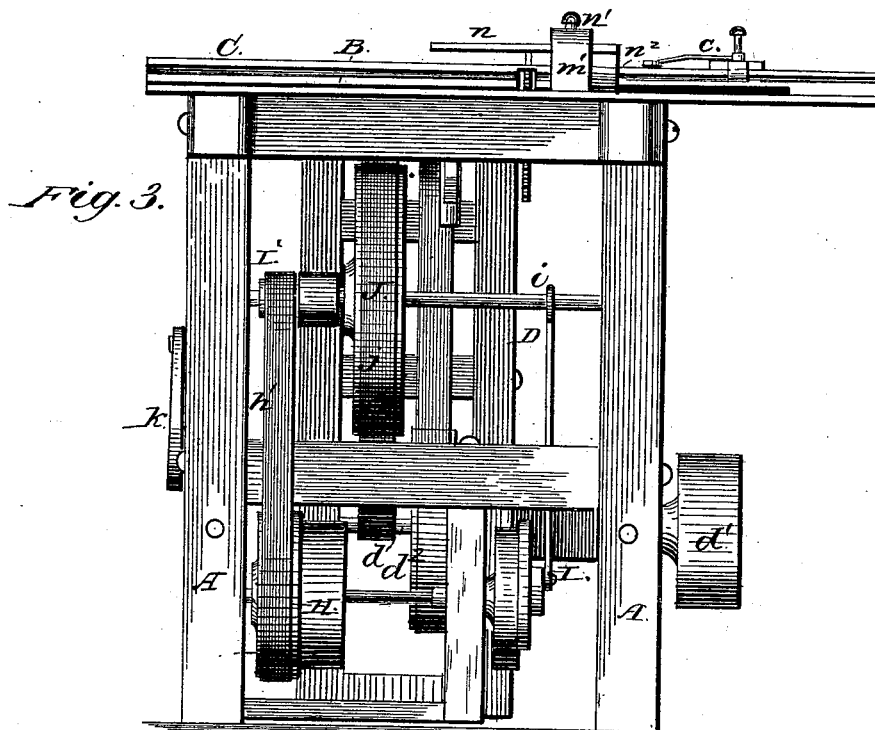
Witnesses  
*Wm. G. Dietrich*  
*T. J. Hickey*

Inventor  
*Eli Reno,*  
 by *De Witt C. Allen*  
 attorney

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 Fred G. Dietrich  
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Eli Bins.  
by De Witt C. Allen  
attorney

# UNITED STATES PATENT OFFICE.

ELI RENO, OF CHATTANOOGA, TENNESSEE.

## IMPROVEMENT IN CIRCULAR SAWING MACHINES.

Specification forming part of Letters Patent No. **217,957**, dated July 29, 1879; application filed May 27, 1879.

### *To all whom it may concern:*

Be it known that I, ELI RENO, of Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Circular Sawing Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being made to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side view of my improved machine; Fig. 2, a top or plan view; Fig. 3, an end view; Fig. 4, a transverse sectional view. Figs. 5, 6, and 7 are detail views.

This invention relates to new and useful improvements in the class of circular sawing machines, and more particularly to the class employing a swinging or oscillating saw-frame; and the invention consists in the general construction and arrangement of parts, all as will be hereinafter fully described, and specifically pointed out in the claims.

In the drawings, A represents the frame of the machine, provided with the usual table or top, B, having a longitudinal grooved beam, C, secured thereon, against which the lumber to be cut rests, the lumber being held against the beam C by a laterally-adjustable spring, *a*. *b* represents an adjustable gage-plate, working in the grooves of the beam C, against which the end of the lumber rests, said plate being adjustable for the purpose of regulating the length of the lumber to be cut. This plate is provided on one side with a block, *b'*, having pivoted thereto a spring-bar, *c*, for holding the lumber down on the table, all as clearly shown in Fig. 2.

D represents an oscillating saw-frame, mounted on hollow trunnions, with driving-shaft *d* passing through these trunnions, which has mounted on one end thereof the driving-pulley *d*<sup>1</sup>, and centrally mounted thereon a band-pulley, *d*<sup>2</sup>. The saw-frame is provided at its upper end with a shaft, *e*, upon one end of which is mounted a circular saw, E, and also mounted thereon a small band-pulley, *e*<sup>1</sup>, connected with band-pulley *d*<sup>2</sup> by the endless band *e*<sup>2</sup>, through the medium of which the saw is operated.

The lower end of one of the beams composing the saw-frame D is provided with a diagonal

groove, *f*, partially covered by plates *f*<sup>1</sup> *f*<sup>1</sup>, forming a guideway, by which one end of the pitman F can be adjustably secured therein through the medium of the bolt and nut *f*<sup>2</sup>, and a plate, *f*<sup>3</sup>, secured on the end of said bolt and working in said groove *f*.

The pitman at its opposite end is provided with a curved slot, G, in which works a stud, *g*, eccentrically secured to the face of the disk *g'*, mounted on the shaft *h*.

I represents a bent rod, having one end secured to the slotted end of the pitman, and its opposite end secured to a revolving shaft, *i*. The object of the bent rod is to hold the pitman in its vertical plane, and keep it from moving up and down with the stud *g* in its curved slot, thus obviating or overcoming any liability of the stopping of the oscillations of the saw-frame. The bend in the rod I is simply for the purpose of clearing the cross-piece in the main frame of the machine.

By the above-described mechanism a crank motion is produced for oscillating the saw-frame D, the slot in the pitman being struck from the same radius as the stud *g* is from the center of shaft. The time it takes the stud to travel around the curve of the slot permits the pause of saw-frame when it is back from its cutting position long enough to allow the operator time to adjust the lumber in proper position on the table in time for the saw to make another cut in its forward movement. The pitman is adapted to be adjusted in the groove of the saw-frame, as before described, for the purpose of regulating the stroke of the frame carrying the saw in proportion to the width of the lumber to be cut.

Mounted upon the revolving shaft *h* is a cone-pulley, H, connected by a band, *h'*, with a cone-pulley, I', mounted on a revolving shaft, *i*, upon which is also mounted a large band-wheel, J, connected by a band, *j*, with the driving-shaft *d*. Through the medium of the above-described mechanism the pitman is operated, the number of oscillations of the saw-frame being regulated by the cone-pulleys, varying from fifteen to forty per minute.

K represents a shaft, provided with a lever, *k*, and a pulley, *k'*, forming a band-tightener for the band *j*.

L represents a spring-lever, pivoted to the

upper portion of the saw-frame, and which, as the saw-frame moves forward and the saw cuts through the lumber, strikes against a stud, *m*, secured to a pivoted beam or rock-shaft, *M*, journaled in the sides of the frame of the machine under the table, said beam or rock-shaft being provided with a vertical stud, *m'*, passing up through a slot in the table. This stud has a rod, *n*, passing through it, which is adjusted and secured in any desired position by a set-screw, *n'*; and upon one end of said rod *n*, at right angles thereto, is secured a bent metal plate, *n*<sup>2</sup>, the free end of which passes under the longitudinal beam *C*, against which the lumber rests while being cut.

It will thus be observed that after the lumber has been cut by the saw and the lever *L* strikes against the stud *m* it will be forced backward, thus turning the beam or rock-shaft *M*, so as to force the bent plate forward under the beam *C* through the medium of the intermediate mechanism, thus pushing the pieces out of the way as fast as they are cut off. The adjustment of the rod *n* is for the purpose of adjusting the plate *n*<sup>2</sup> relatively to the length of the lumber to be cut. A spring, *o*, arranged back of the stud *m*, forces the stud forward when released from contact with the lever *L*, thus returning the plate *n*<sup>2</sup> to its original position.

Further explanation of the operation of the machine is deemed unnecessary, it being obvious from the foregoing description.

By my improved machine lumber can be cut in a speedy and economical manner, and the machine is especially adapted for box-manufacturers, or others using lumber in quantities, and in pieces varying from fifteen inches wide and thirty inches long downward.

I am aware that intermittent vibrating or oscillating saw-frames are common in circular sawing machines, and such I do not desire to claim, broadly, as my invention; but,

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

1. In a circular sawing machine, the combination, with an oscillating saw-frame, of mechanism, substantially as described, whereby the

length of the stroke of the saw-frame can be regulated, and said saw-frame caused to pause after its return movement, substantially as herein shown and specified.

2. In a circular sawing machine, the combination, with an oscillating saw-frame, of mechanism, substantially as described, operated through the medium of the saw-frame, whereby the pieces of lumber are pushed out of the way as fast as they are cut off, substantially as herein shown and specified.

3. In a circular sawing machine, the combination of the oscillating saw-frame *D*, provided with the diagonal groove *f*, and the pitman *F*, provided with devices whereby it is adapted to be adjusted therein for regulating the stroke of the saw-frame in proportion to the width of the lumber to be cut, substantially as herein shown and described.

4. In a circular sawing machine, the combination, with the oscillating saw-frame *D*, of the pitman *F*, provided with the curved slot *G*, shaped as shown, the disk *g'*, having a stud, *g*, eccentrically secured to the face thereof, and the rod *I*, substantially as and for the purpose herein shown and described.

5. The combination, with the saw-frame *D*, of the slotted pitman *F*, disk *g'*, having stud *g*, shaft *h*, cone-pulleys *H I'*, connected by a band, *h'*, and driving mechanism, substantially as herein shown and described.

6. The combination of the oscillating saw-frame *D*, provided with the pivoted lever *L*, and pivoted beam or rock-shaft *M*, provided with the studs *m m'*, the spring *o*, and adjustable rod *n*, provided with the plate *n*<sup>2</sup>, substantially as and for the purpose herein shown and described.

7. The adjustable gage-plate *b*, provided with the pivoted spring-bar *c*, in combination with the longitudinal grooved beam *C*, substantially as and for the purpose herein shown and described.

ELI RENO.

Witnesses:

W. HOWARD SMITH,  
J. M. DEMING.