

(No Model.)

2 Sheets—Sheet 1.

J. M. STORY.

SAW MILL.

No. 295,303.

Patented Mar. 18, 1884.

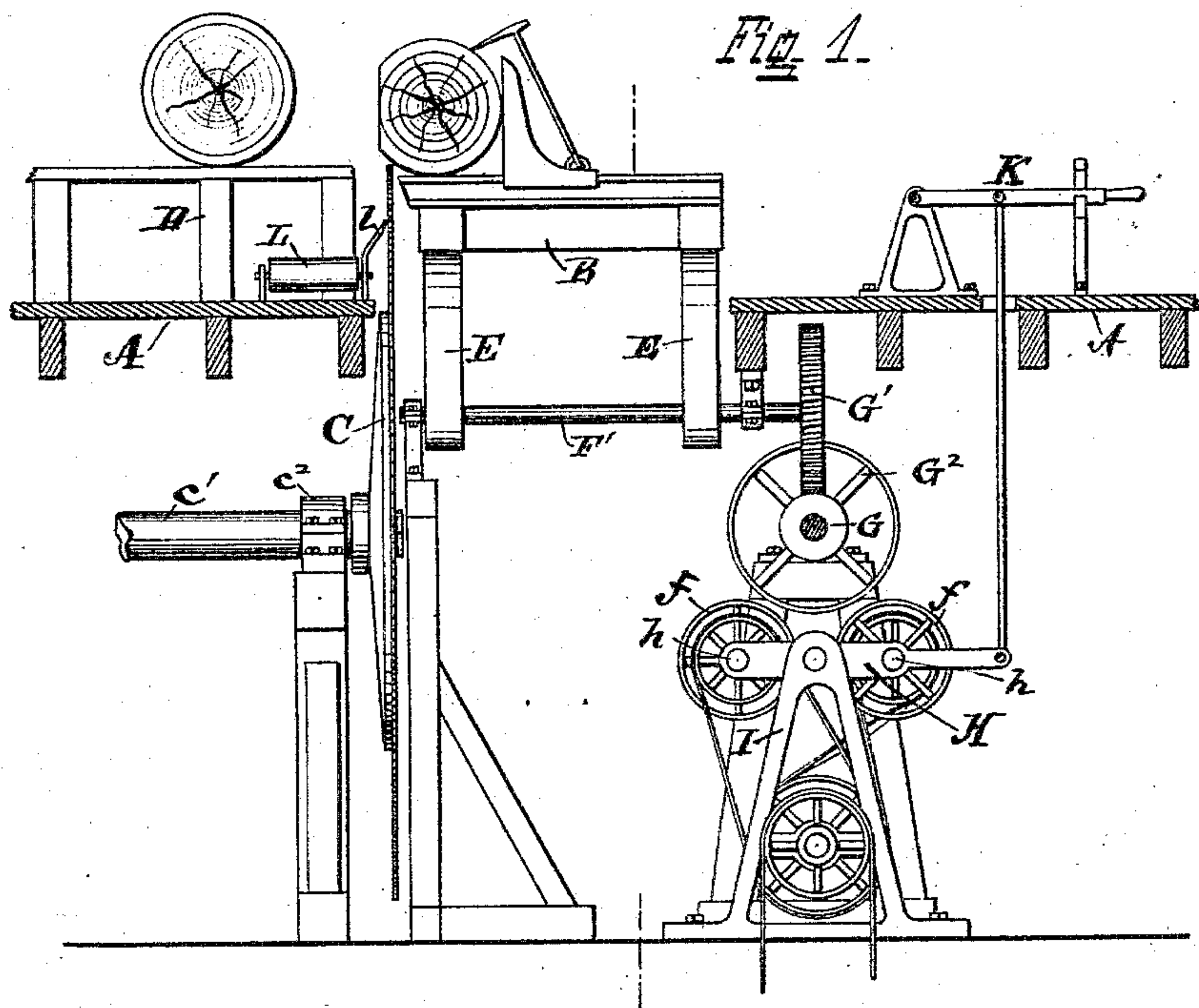
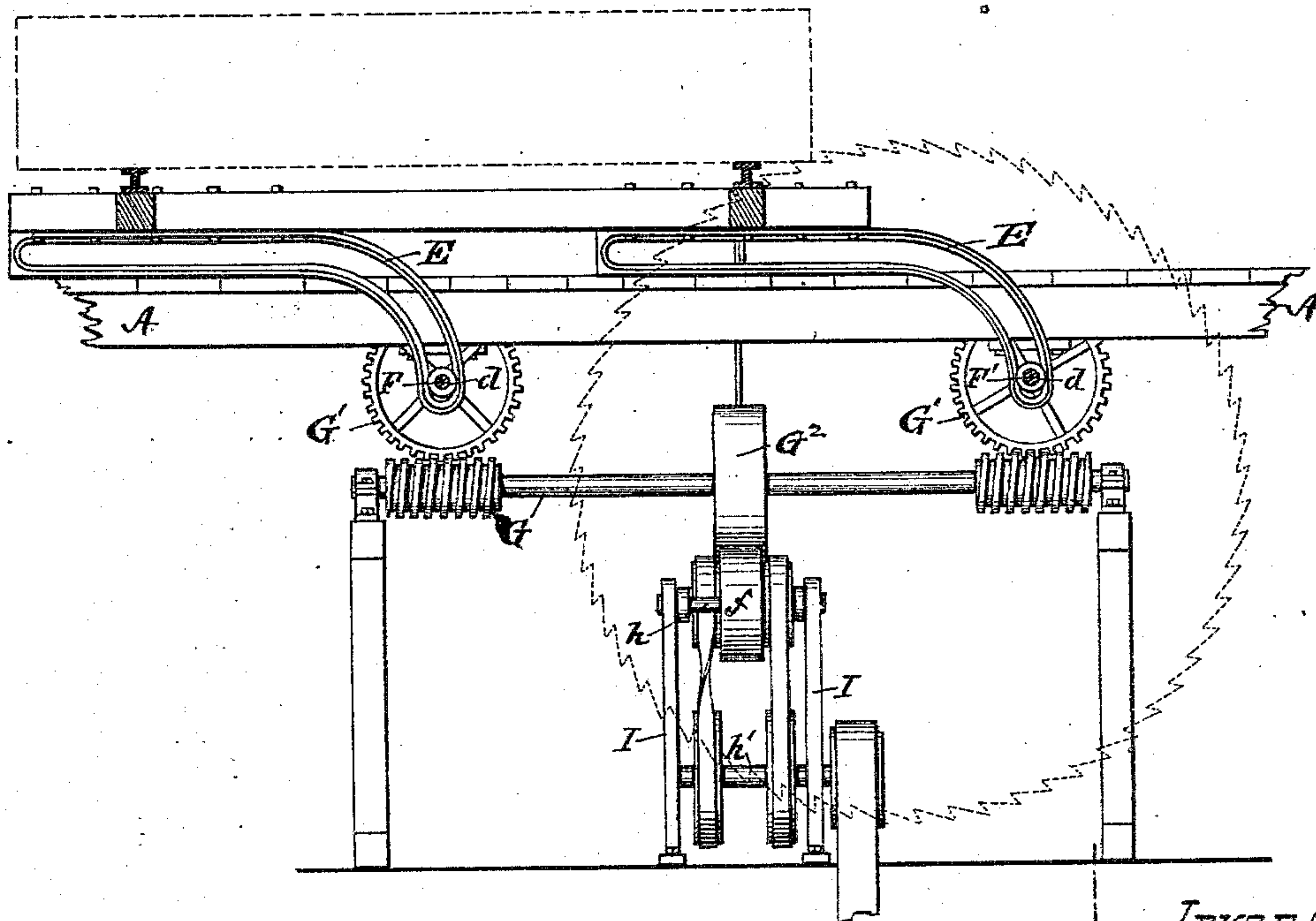


Fig 2.



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By L. M. Hosen Atty.

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Fig. 3.

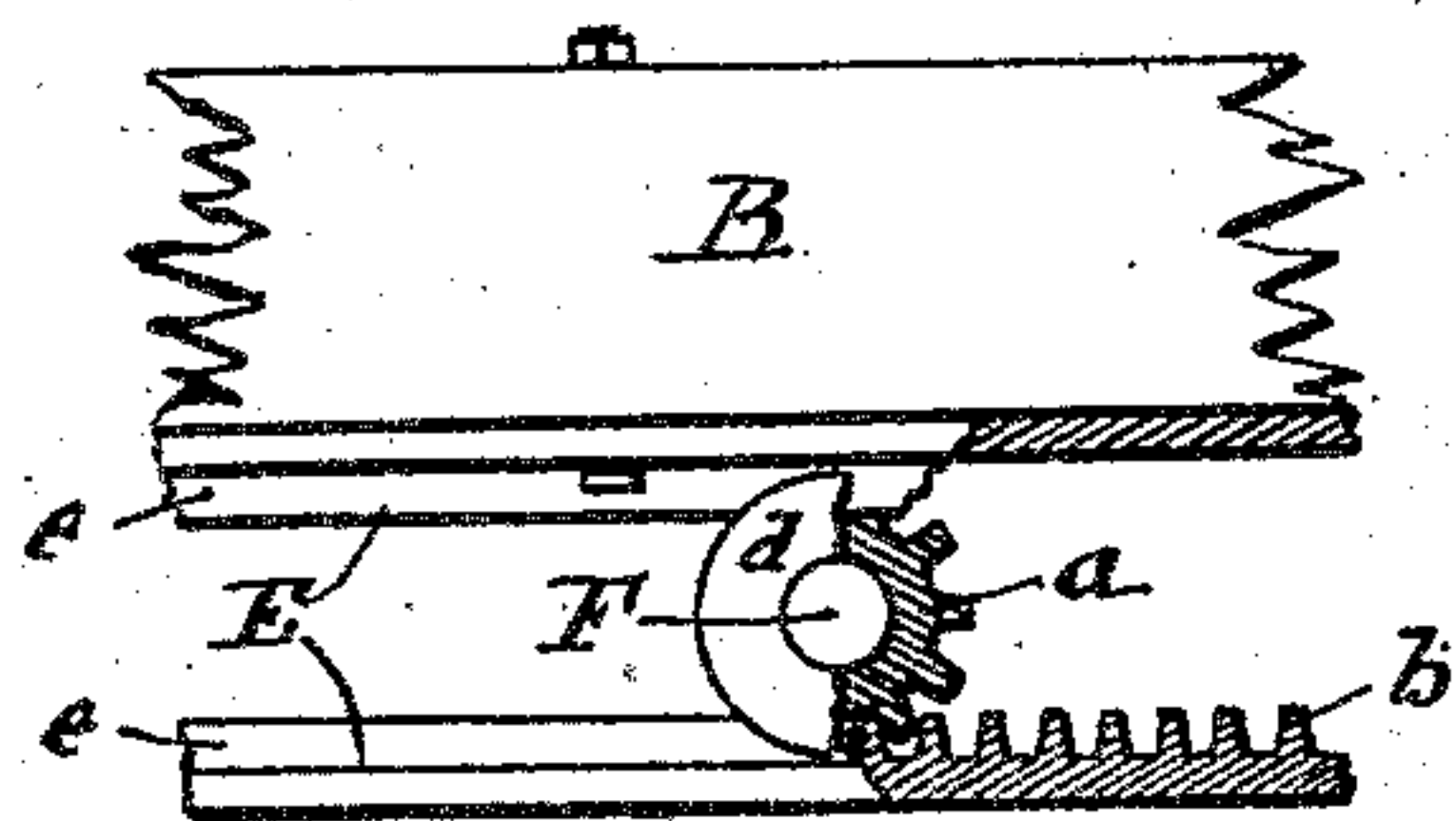


Fig. 4.

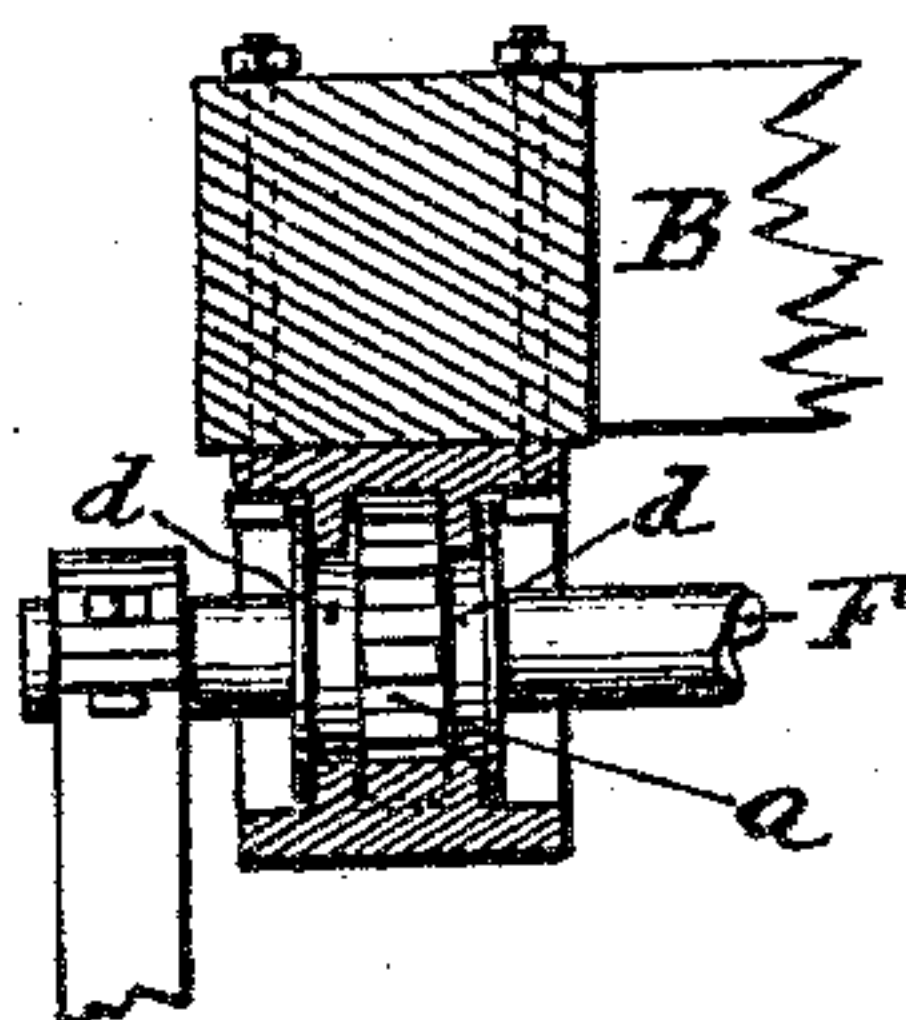
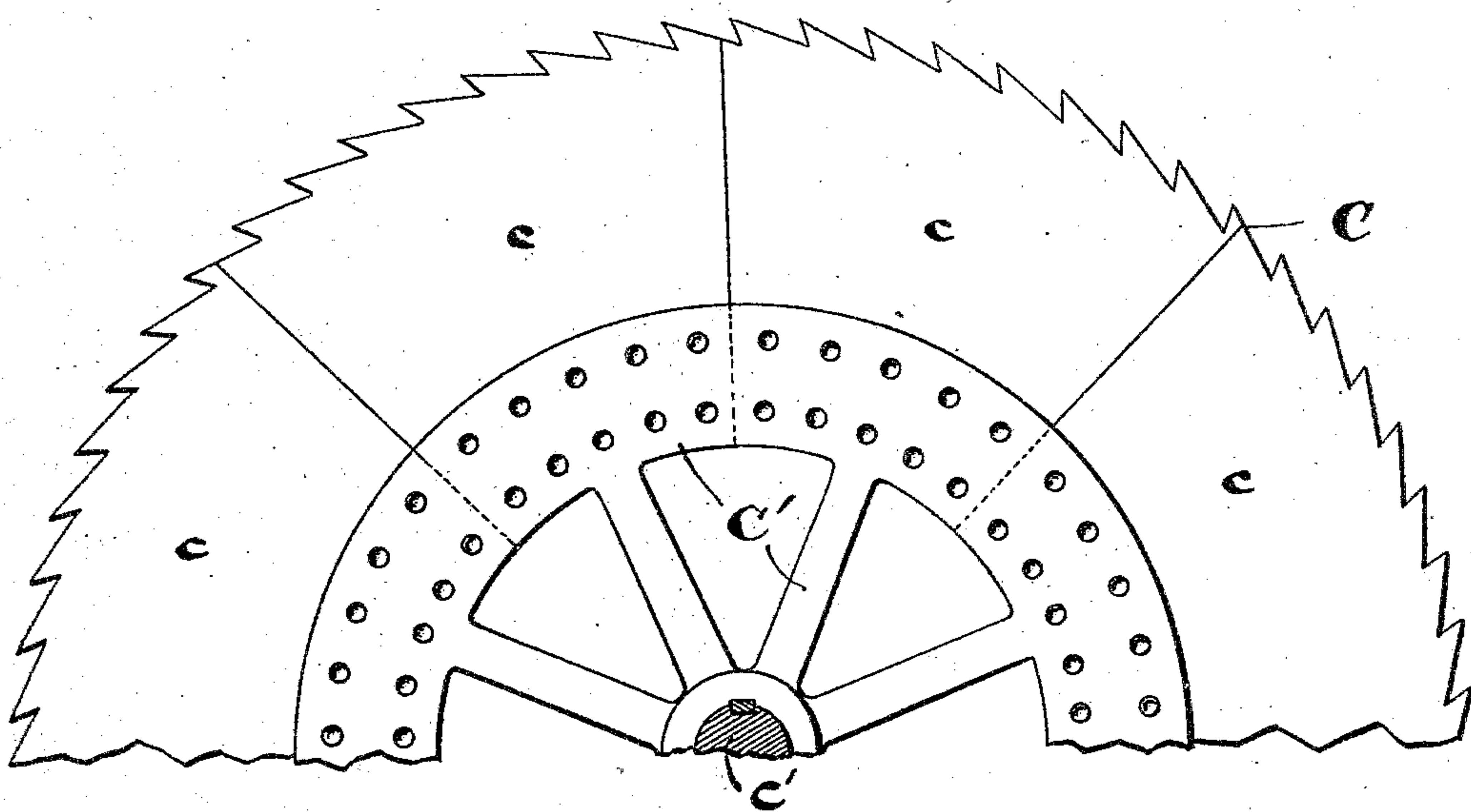


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSEPH M. STORY, OF SPRING CITY, TENNESSEE.

SAW-MILL.

SPECIFICATION forming part of Letters Patent No. 295,303, dated March 18, 1884.

Application filed March 26, 1883. Renewed January 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. STORY, a citizen of the United States, residing at Spring City, Tennessee, have invented new and useful
5 Improvements in Sawing Lumber, of which the following is a specification.

My invention relates to circular saw mills employed in cutting logs into boards, its object being to improve their efficiency and economy
10 of operation; and to this end it consists in a novel construction of such mills, embodying also a novel principle of operation conducing to efficiency.

The essential principle of my invention consists in giving to the log a vertical and horizontal movement in relation to the saw by suitable mechanism controlling the carriage.

The remaining features of my invention consist of the construction and arrangement of
20 mechanism employed in carrying out the above-stated principle, all as more fully set forth herein.

A convenient form of mechanism embodying my invention is illustrated in the accompanying
25 drawings, in which—

Figure 1 is an end view of the saw-mill, showing the relative positions of the various parts. Fig. 2 is a side elevation sectioned vertically through the carriage; Fig. 3, a detached view
30 of a portion of the carriage and one of its yokes and driving-pinion, showing details of construction by a part section of the yoke longitudinally; Fig. 4, a cross-section of one of the yokes, showing its construction in relation to
35 the bearing-rollers and driving-pinion; and Fig. 5, a partial face view of the saw, showing the segmental plates bolted to the hub.

Referring to the drawings, in which the parts described are indicated by letters of reference, A designates the floor of the mill; B, the
40 log-carriage; C, the saw, and D the platform adjacent to the carriage.

The saw C is larger than has been customary heretofore, and is constructed of removable
45 segments *c*, bolted to a circular wheel or flange, *C'*, secured upon a shaft, *c'*, mounted in bearings *c''* beneath the floor, through which the saw projects adjacent to and between the carriage and its platform D. I reserve the right
50 to claim this construction of the saw in a separate patent.

The carriage is arranged to have both a vertical and longitudinal motion in relation to the saw. A preferable construction is to secure upon the bottom of the carriage four supporting
55 guide-yokes, E, arranged in pairs at each end of the carriage. These yokes are curved, as shown in Fig. 1, and extend downward over two parallel horizontal shafts, F F', rotating in bearings beneath the floor A. By means of
60 the rotation of these shafts motion is given to the carriage through spur-pinions *a* at each guide-yoke meshing in a line of cog-teeth, or rack, *b*, formed centrally in the lower interior face of the yoke. Each pinion *a* is flanked by
65 two flanged friction-rollers, *d d'*, running loosely upon the shaft, and upon these rollers the yoke bears by means of bearing-rails *e*, flanking the rack *b* as part of the yoke. The construction of the yoke and of its interior faces will be readily understood by reference to Figs. 3 and 4.

The shafts F F' are driven by worm-gear G, arranged in suitable bearings beneath the floor, engaging spur-pinions G' upon the shafts, the
75 worm-shaft G being driven by reversible friction-gear in any convenient manner. A preferable construction of the friction-gear is a pivoted frame, H, carrying two parallel shafts, *h*, provided with friction-wheels *f*, driven in opposite
80 directions by belting from a counter-shaft, *h'*. The pivoted frame H is mounted in a supporting-frame, I, and so arranged that its friction-pulleys *f* may, by the oscillation of the frame H, be thrown alternately into driving contact
85 with a friction-pulley, G², upon the worm-shaft G, which oscillation is effected by a hand-lever, K, and suitable connections under control of the attendant.

The operation is as follows: The parts being in the position shown in Figs. 1 and 2 and the
90 log (indicated in Fig. 2 by dotted lines) being secured to the head-blocks upon the carriage, forward motion is given to the shafts F F' by means of the friction and worm gear. The first effect of the movement is to carry the log
95 downward upon the saw (indicated in Fig. 2 by dotted lines) and to open the kerf at the end of the log, and then, by reason of the curved contour of the guide-yokes E, to carry the log forward across the upper arc of the saw. A
100 reversal of the movement restores the carriage to its original position, ready for the next cut.

Beneath the platform D, adjacent to the saw, a system of rollers, L, is arranged, with a suitable spreader, I, to open the kerf as the cant goes forward and guide the board into position upon the rollers.

While I have shown the saw arranged below the carriage and the latter operated downward upon it, it will be obvious that a reversal of the process may be effected by arranging the saw above the carriage and feeding the work upward to the saw. The advantages of this construction are many and obvious. The linear travel of the carriage is reduced, the gravity of the carriage and log assists the work, and by the increased rotative speed of the saw-teeth a much smoother board is obtained. Moreover, the construction of the saw and its high circumferential speed enables the use of much thinner sheets of metal for the segments than are ordinarily employed, and the loss of material in the kerf is materially reduced, and any injury to the saw may be repaired inexpensively by replacing one or more segments. If found necessary, an additional supporting-shaft, F, may be employed to preserve a proper balance of the carriage, or the two described may be placed in such position as to better attain this object, or the yokes entirely dispensed with and the carriage operated upon suitably-inclined guideways by chain-gear or other mechanism.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, substantially as before set forth, of the log-carriage and mechanism, substantially such as described, for propelling the same, whereby in feeding the log to the saw the simple horizontal movement of said

carriage is preceded by a compound vertical and horizontal movement thereof.

2. In a circular saw mill, a log-carriage provided with curved supporting-yokes, adapted to be propelled and guided upon fixed shafts to give the log both a vertical and horizontal movement in relation to the saw, substantially as set forth.

3. In combination with the carriage B, the curved supporting-yokes E, having the interior face at one or both sides formed as bearing-rails, and the depressed surface between the rails formed as a rack, and the supporting-shafts F F', provided with spur-pinions and friction-rollers, substantially as specified.

4. In combination with a log-carriage provided with guide-yokes and shafts, upon which the same are guided and driven, the reversible worm and friction gear, substantially such as described, for imparting reversible motion to the carriage, as set forth.

5. The construction and arrangement, in a saw-mill, of a circular saw journaled beneath the floor, and operating upward through the same, a carriage having both a vertical and horizontal movement in relation to the saw, and mechanism, such substantially as described, for supporting, guiding, and operating the carriage under control of the attendant, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

J. M. STORY.

Witnesses:

L. M. HOSEA,
LOUIS F. SCHUERMAN.