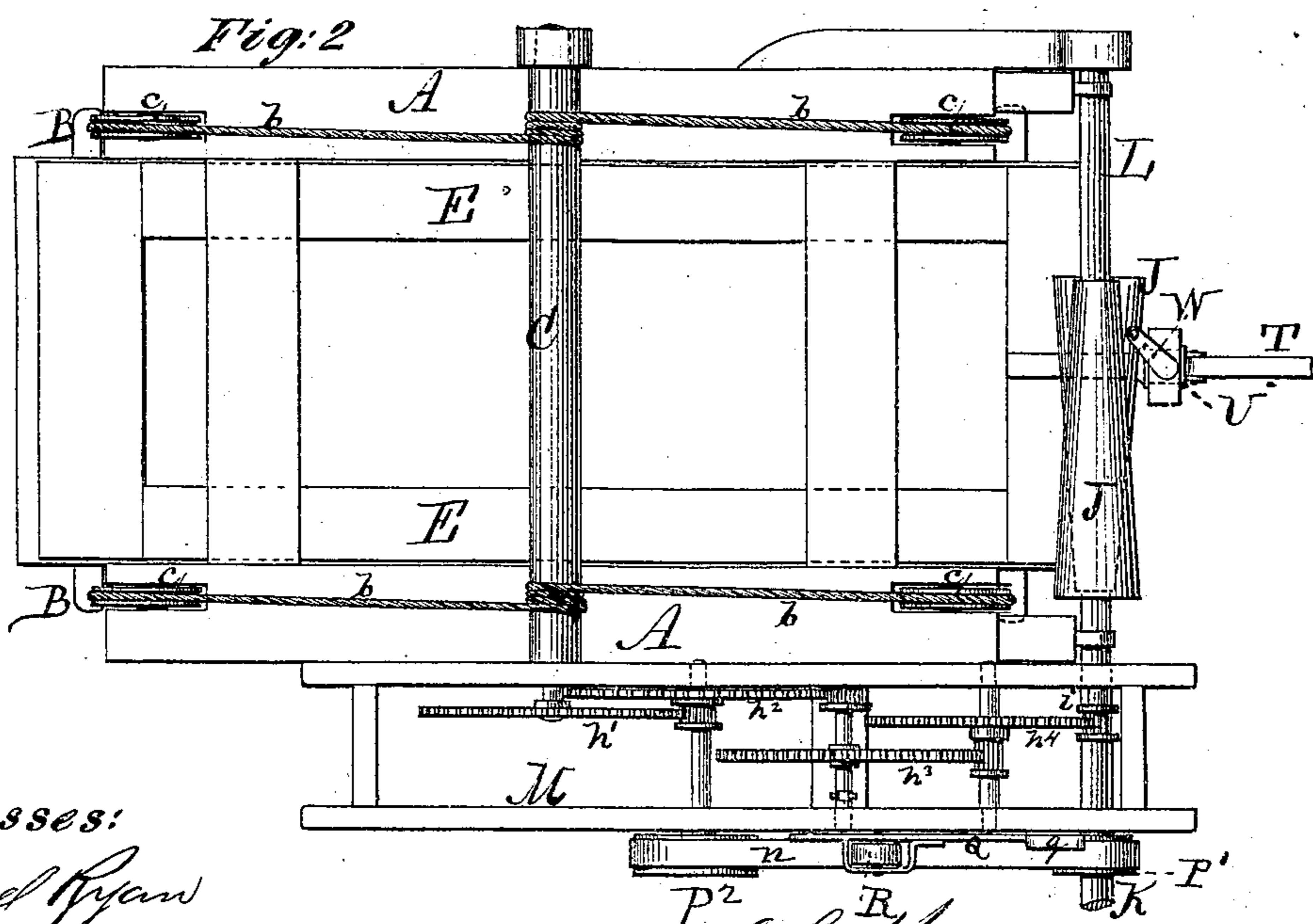
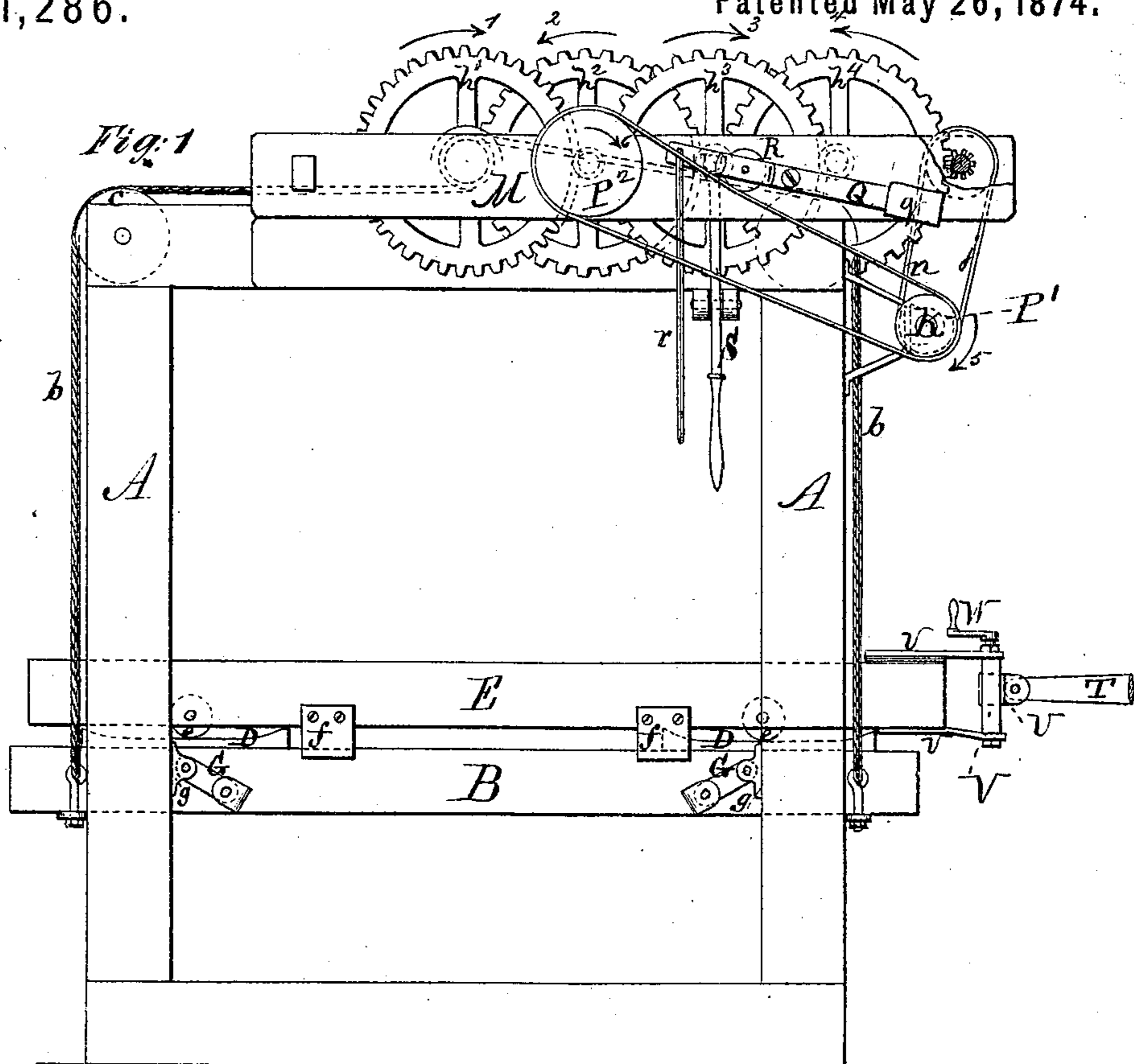


J. HEERMANS & H. S. REED.

Stone-Sawing Machines.

No. 151,286.

Patented May 26, 1874.



Witnesses:

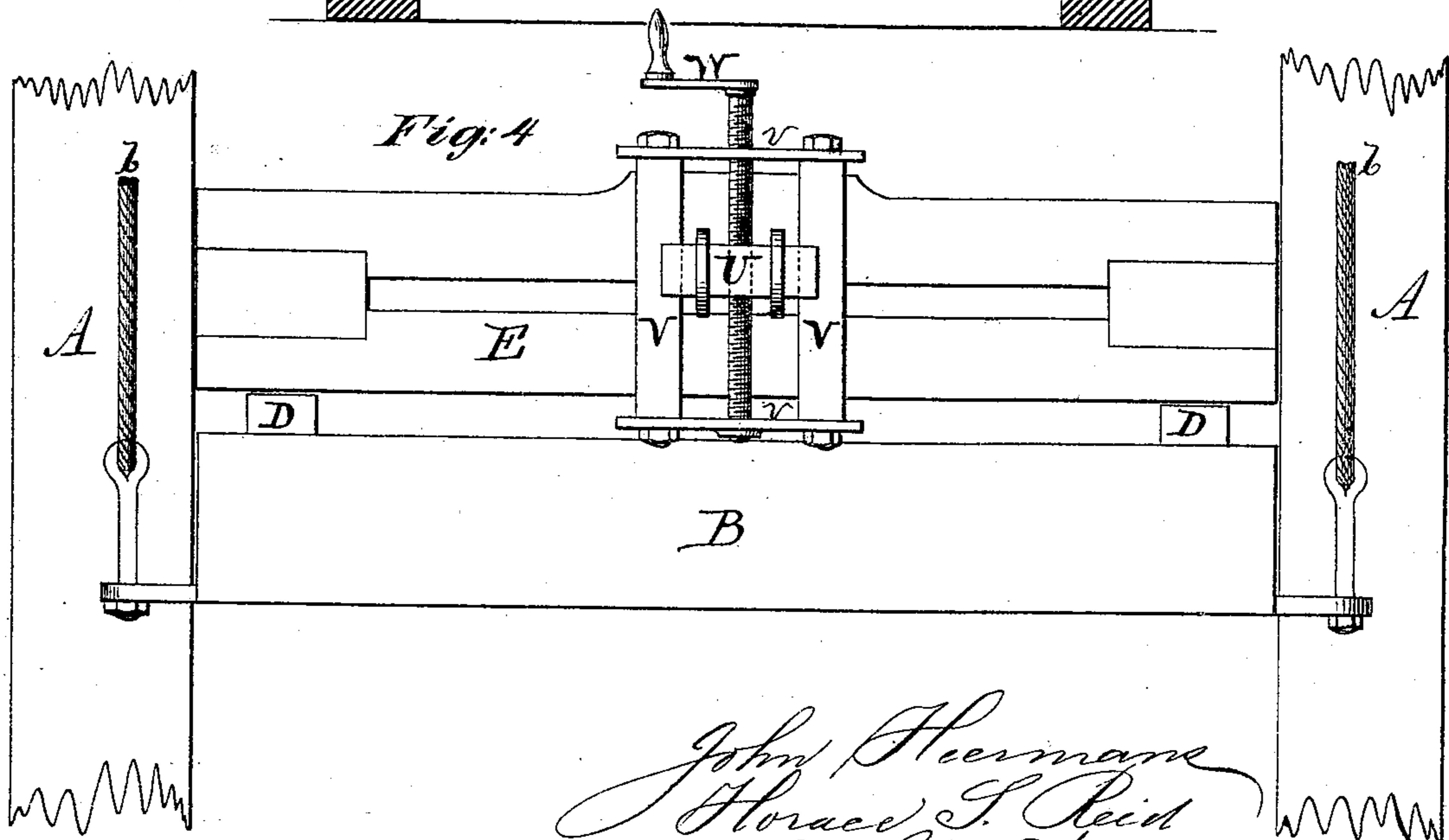
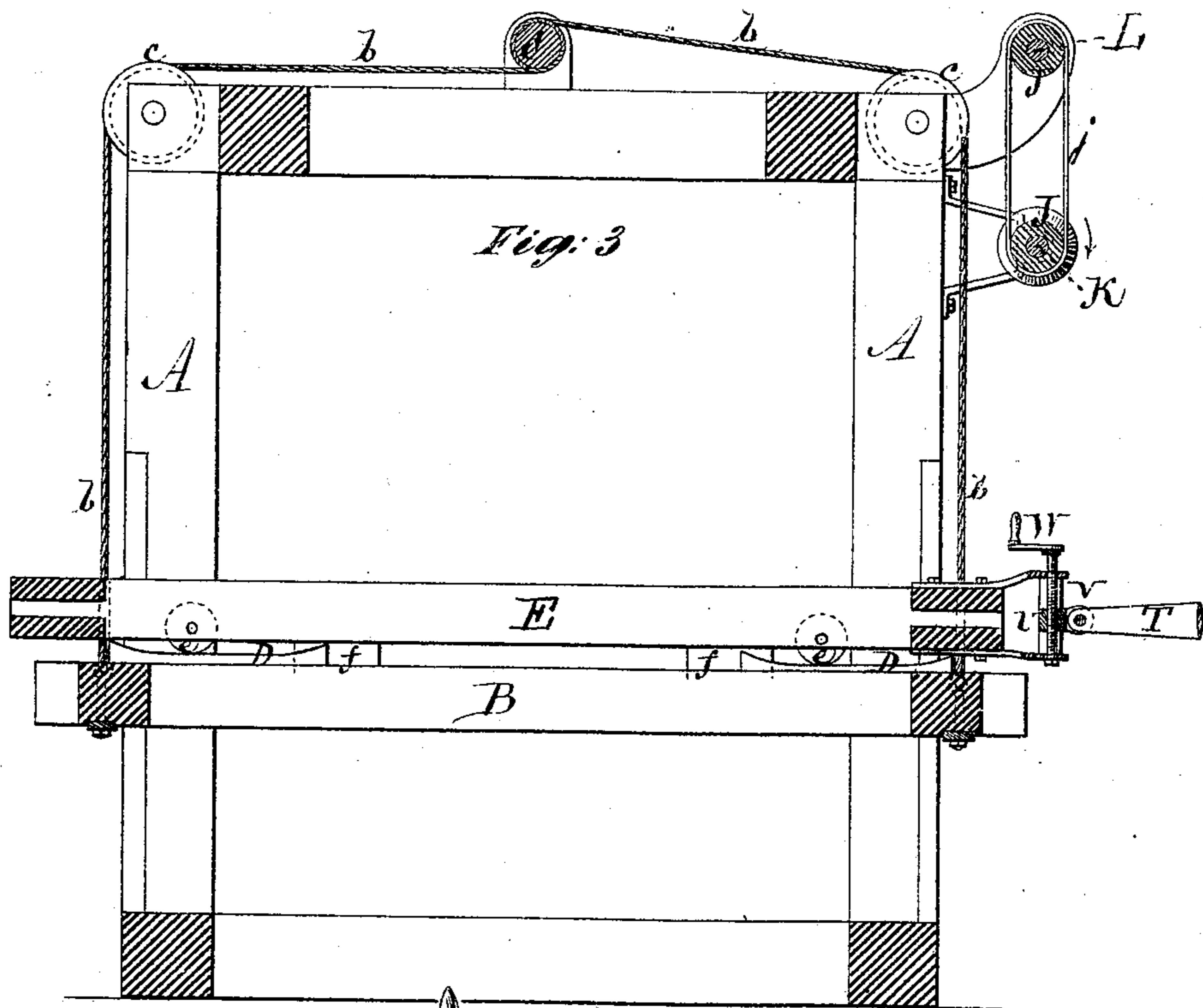
Michael Ryan  
Fred Hays

John Heermans  
H. S. Reed  
by their Attorneys  
Brown & Allen

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*Witnesses:*  
*Michael Ryan*  
*Fred Warner*

*John Heermans*  
*Horace S. Reed*  
*by their Attorneys*  
*Brown & Allen*

# UNITED STATES PATENT OFFICE.

JOHN HEERMANS AND HORACE S. REED, OF CORNING, NEW YORK.

## IMPROVEMENT IN STONE-SAWING MACHINES.

Specification forming part of Letters Patent No. 151,286, dated May 26, 1874; application filed February 26, 1874.

*To all whom it may concern:*

Be it known that we, JOHN HEERMANS and HORACE S. REED, of Corning, in the county of Steuben and State of New York have invented certain Improvements in Stone-Sawing Machines, of which the following is a specification:

The invention consists, first, in the combination of a suspended frame having a descending but no longitudinal movement, and provided with ways which are straight for a portion of their length, and inclined upward at each end, and self-adjusting stops for preventing the frame reacting upward when at work, with a saw-frame working in said ways, and having a stroke which is straight throughout a portion of its length with a rise near the termination thereof, as will more fully hereinafter appear; second, the combination of a feed-shaft, from which the saw-frame is suspended, with a pair of cone-pulleys and their shafts and belts, a pair of driving-pulleys and their belts, a tightening-pulley, and a series of gear-wheels, in the manner and for the purpose hereinafter particularly described; third, the combination of a screw and sliding block for adjusting the pitman higher or lower, to correspond with the position of the saw-frame with relation to the outer end of the pitman and the position of the saw upon the work.

In the accompanying drawings, Figure 1 is a side elevation of our invention. Fig. 2 is a top view. Fig. 3 is a longitudinal vertical section. Fig. 4 is an end view.

The stroke of the saw is straight for a portion of its length, with a rise near the termination thereof, to allow sand to flow into the kerf at each stroke. This is accomplished in the following manner: A frame, B, composed of two side and two end pieces, works between the posts A of the main frame of the machine, being suspended by cords or chains *b*, attached to its corners, and passed over pulleys *c* in the upper part of the main frame A, and secured to a feed-roller, C, journaled in the top of said frame near its center. On the upper surfaces of the side pieces of the frame B, near the ends, are concave bearing-surfaces or ways D, which are straight for a portion of their length, and inclined upward at each end. Over the frame B is the saw-frame E, which is similar

in form, composed of two side and two end pieces, and provided with guide-plates *f*, bearing against the side pieces of the frame B to prevent lateral displacement. On the under side of the saw-frame are friction-rollers *e*, which travel upon the concave ways or bearing-surfaces D of the frame B. As the saw-frame reciprocates longitudinally, the stroke is straight while the rollers are on the straight portions of the ways, and when the rollers travel up the inclined portions the saw-frame rises, thus allowing sand to flow into the kerf at each stroke of the saw. The saw-frame may be fitted with a single saw or a gang of saws, as may be desired. Instead of the rollers *e*, the frame may be provided with slides or blocks for engagement with the ways D. If desired, the saw-frame may be arranged to run under the frame B, instead of resting upon it. On the sides of the suspended frame B are pivoted bars G, having shoes *g* on their free ends, which bear against the sides of the posts of the main frame A, and thus prevent the frame B from reacting upward when at work, and also from moving longitudinally. The feed-shaft C, from which the frame B is suspended, receives motion from the line-shaft K, through a series of gear-wheels,  $h^1 h^2 h^3 h^4$ , a pinion, *i*, and two cone-pulleys, J J, connected by a belt, *j*, each gear-wheel being driven by a pinion on the shaft of the next adjacent wheel, except the wheel  $h^4$ , which is driven by the pinion *i* on the end of the shaft L, which carries the upper cone-pulley J. The line-shaft K revolves in the direction of the arrow 5, and, through the cone-pulley and gearing, communicates motion in a corresponding direction to the feed-shaft C, as indicated by the arrow 1, but at a much slower rate of speed, so as to allow the suspended frame B to descend at a suitable rate to properly feed the saw to the work. The gearing is journaled in a frame, M, on the outside of which is a pulley,  $P^2$ , attached to the end of the shaft which carries the gear-wheel  $h^3$ . This pulley is driven by a belt, *n*, from a pulley,  $P^1$ , on the line-shaft K. Pivoted to the frame M is a lever, Q, carrying a weight, *q*, at one end, and a belt-tightening pulley, R, at the other end, and provided with a rod, *r*, for drawing down the pulley to engage with the belt *n*. The

shaft of the gear-wheel  $h^3$  is provided with a lever, S, by which it may be moved outward, so as to disengage its pinion from the gear-wheel  $h^2$ . When the saw-frame is at work the belt  $n$  runs loosely on the pulleys  $P^1 P^2$ , and the saw-frame is fed downward by means of the gearing, which turns the feed-shaft C in the direction indicated by the arrow 1, so as to cause the cords or chains  $b$  to unwind. When it is desired to elevate the saw-frame, the wheel  $h^3$  is thrown out of gear by means of the lever S, the belt-tightening pulley R is drawn down by the rod  $r$ , so as to tighten the belt  $n$ , and cause the pulley  $P^2$  to revolve in the direction of the arrow 6, which reverses the motion of the gear-wheels  $h^1 h^2$ , causing them to revolve in directions opposite to those indicated by the arrows 1 and 2, so as to wind up the cords or chains  $b$ , and thus elevate the frames B and E. The pitman T has its inner end pivoted to a block, U, arranged to slide vertically between bars V attached to the saw-frame by means of horizontal plates  $u$ , in which is journaled a hand-screw, W, engaging with a thread in the block U. By turning the hand-screw in the proper direction, the inner end of the pitman is raised or lowered in order to adjust it to the proper height with relation

to its outer end, and the position of the saw-frame upon the work.

We claim—

1. The combination of the suspended frame B, having the ways D and self-adjusting stops G, with the saw-frame E, working on said ways, and having a stroke which is straight throughout a portion of its length with a rise near the termination thereof, all constructed to operate substantially as described.

2. The combination, with the feed-shaft C, from which the saw-frame is suspended, of the cone-pulleys J J, and their shafts K L, and belt  $j$ , the pulleys  $P^1 P^2$ , and belt  $n$ , the tightening-pulley R, and the gearing between the said pulleys and the feed-shaft, all substantially as herein described.

3. The pitman-connection adjustable in the slide V V, by means of the screw W, substantially as and for the purpose herein set forth.

JOHN HEERMANS.

HORACE S. REED.

Witnesses to signature of JOHN HEERMANS:

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Witnesses to signature of HORACE S. REED:

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