

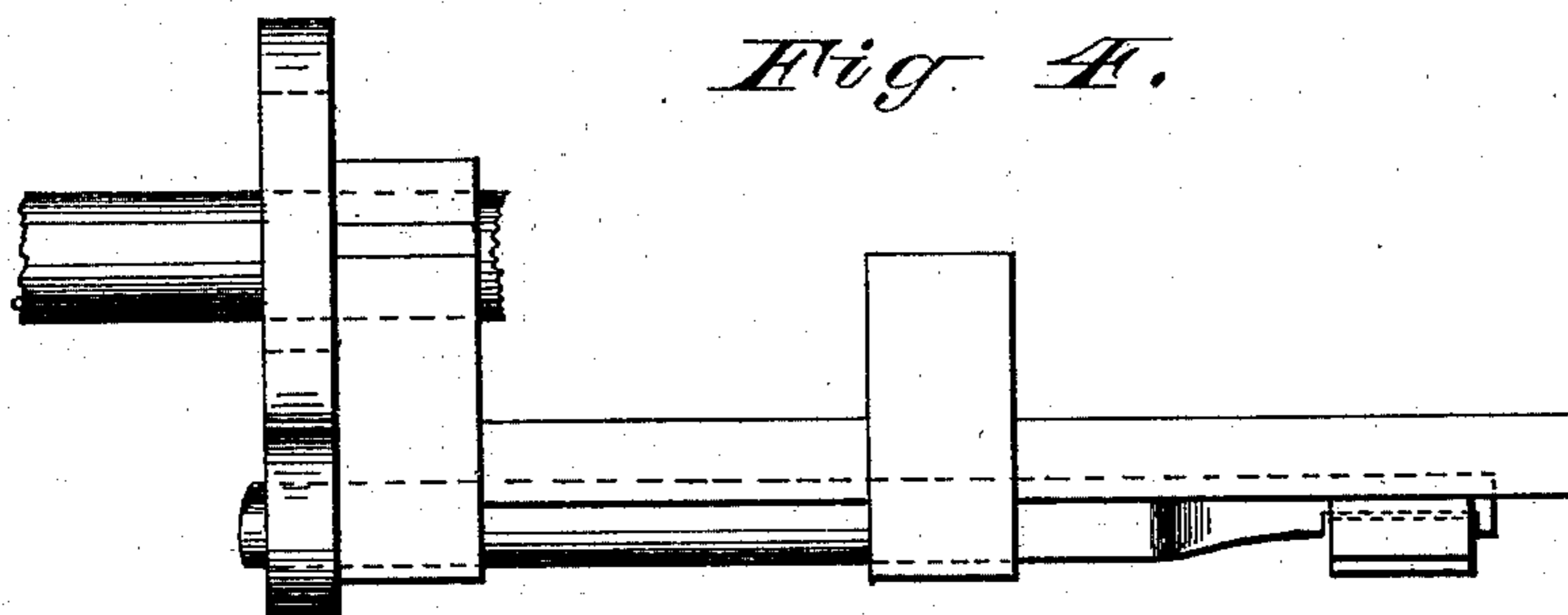
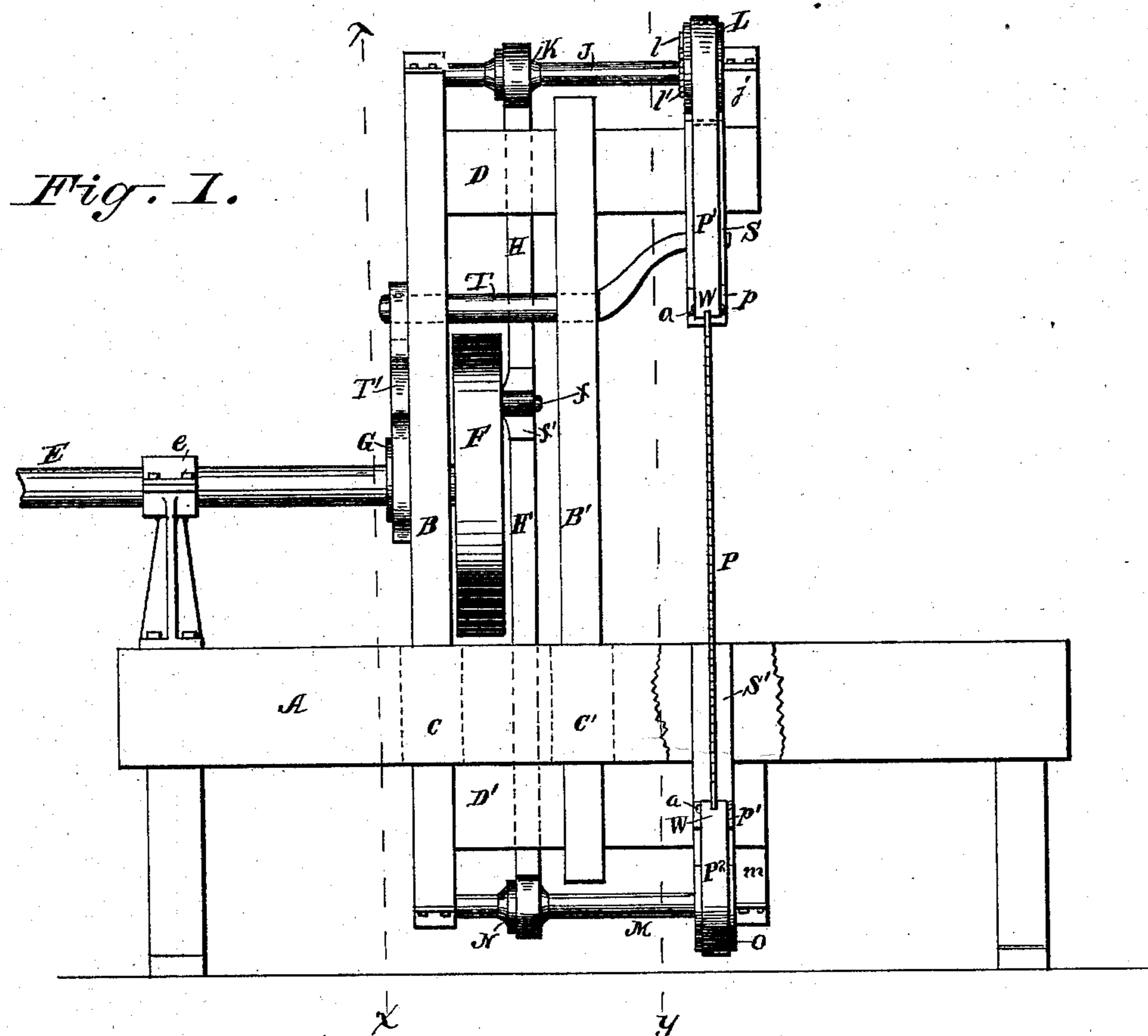
(No Model.)

2 Sheets—Sheet 1.

A. McCREIGHT.
SCROLL SAWING MACHINE.

No. 272,070.

Patented Feb. 13, 1883.



Attest.
J. N. Strickland
E. Hill

Inventor
Alexander McCreight
per Wm. Hubbell Fisher
Atty.

(No Model.)

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Fig. 2.

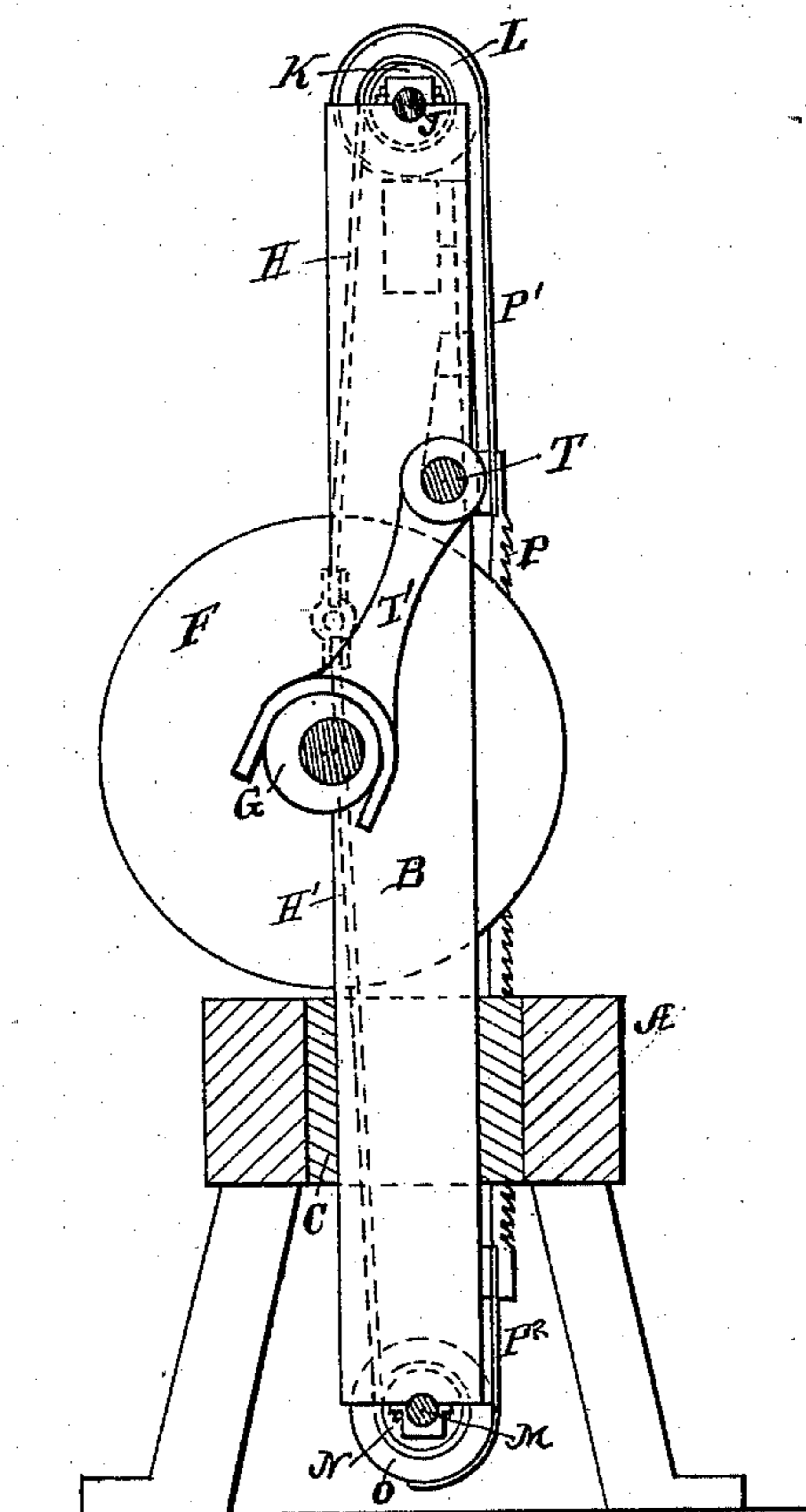
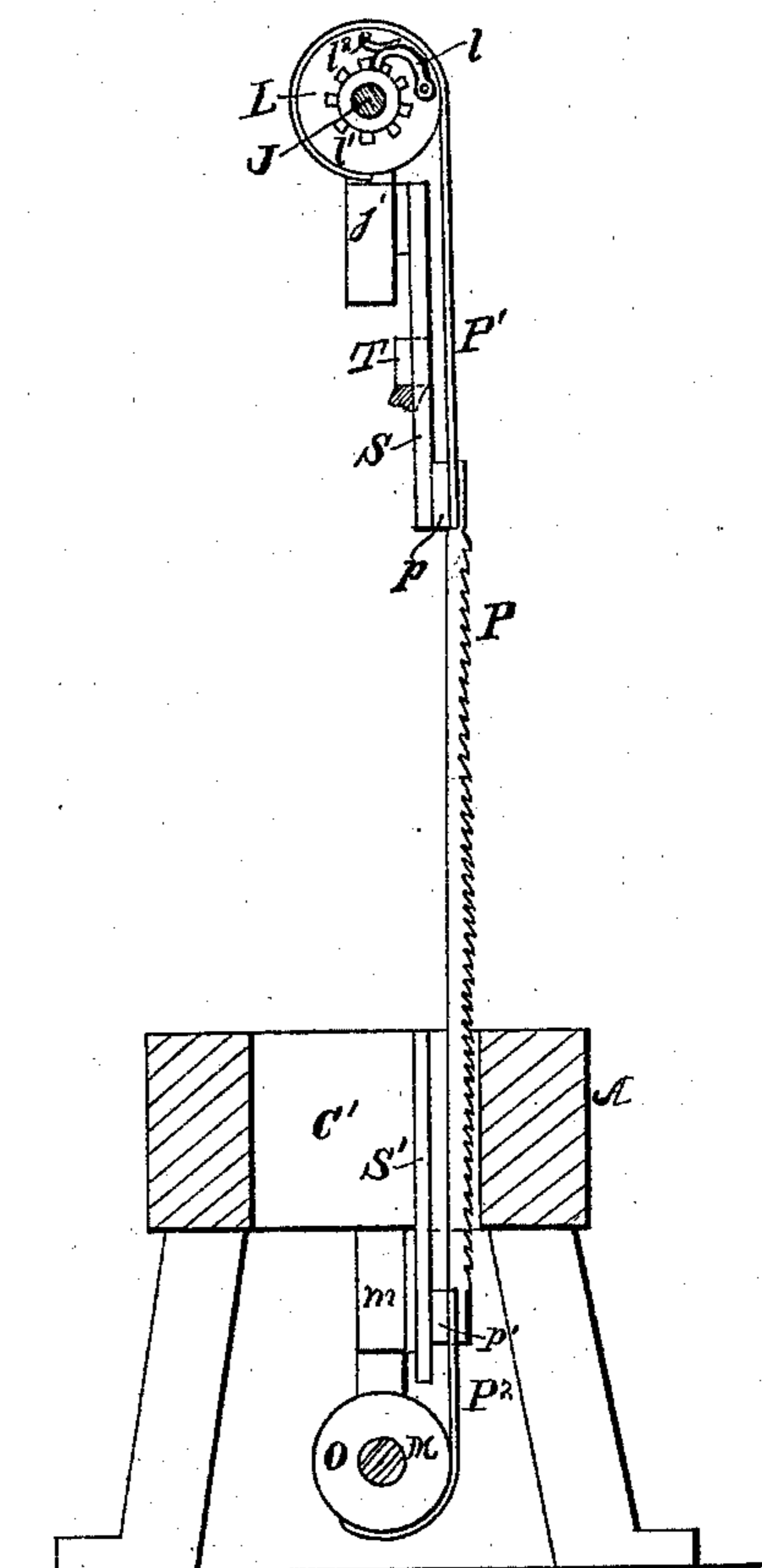


Fig. 3.



Attest.

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E. Hill

Inventor.

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per Wm. Hubbell Fisher,
Atty.

UNITED STATES PATENT OFFICE.

ALEXANDER MCCREIGHT, OF TRANQUILITY, OHIO.

SCROLL-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 272,070, dated February 13, 1883.

Application filed January 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER MCCREIGHT, of the town of Tranquility, county of Adams, and State of Ohio, have invented certain new and useful Improvements in Sawing-Machines, of which the following is a specification.

My invention consists in certain novel appliances and improvements whereby greater speed can be obtained at less expenditure of power than heretofore, and greater accuracy obtained, and a saw with a thinner blade than those employed in the "muley" saws can be used; and my invention further consists in certain other improvements for tightening the saw and regulating the same.

Figure 1 is a front elevation of the saw shown at the end of its downward stroke. Fig. 2 is a cross-sectional elevation on the line $x x$, Fig. 1. Fig. 3 is a cross-sectional elevation on the line $y y$. Fig. 4 is an enlarged top view of a portion of my invention.

Similar parts are designated by similar letters.

The frame A may be of any desirable or convenient shape, of sufficient size and strength to accommodate the various working parts, &c.

The vertical posts B B' are situated on the left-hand half of the frame, being at right angles to its bed, and extending above and below the same, passing through and being firmly fastened to the transverse beams C C', which are in turn firmly fastened to each side of the frame A. These posts B B' are also firmly connected at their top by the longitudinal beam D, which passes through them and projects beyond the right-hand side of the post B'. Another longitudinal beam, D', of the same size and shape as the beam D, and lying immediately under and fastened to the transverse beams C C', similarly connects the posts near their lower ends. The posts B B' thus being rigidly secured by two systems of fastenings at right angles one to the other, all vibration of any kind is effectually prevented, and the strain upon same transferred to and taken up by the heavy frame-work A.

The driving-shaft E is journaled in the standard e, and passes through the post B, projecting sufficiently beyond the standard e to permit of the attachment of any preferred form of pulley or other device for operating

the machine, and also sufficiently beyond the post B to permit of the attachment of the driving-wheel F. The cam G is also attached to this shaft E, preferably immediately next to the left-hand side of the post B. The crank-pin f is attached to the face of the wheel F at a distance from its center equal to the half of the stroke or travel of the saw, and works freely in the box f' , to either end of which is attached an end of the flexible pitmen or pitman-belts, H H'.

On the upper end of the post B is journaled one end of the shaft J, the opposite end being journaled in the standard j , which is attached to the end of the beam D. This shaft runs parallel to the shaft E, and has attached to it, in line with the crank-pin f , the pulley K, to the periphery of which is fastened the upper end of the belt-pitman H.

Next the inner edge of the standard j and on the shaft J is the pulley L, which fits loosely on the shaft, and is rigidly connected to the same by the pawl-clutch l catching into the teeth of the ratchet-wheel l' , which is rigidly secured to the shaft J, the pawl l being kept in place by the spring l^2 .

On the lower end of post B is journaled the shaft M, which is parallel to the shaft J, and is journaled at its opposite end in the hanger m , which is attached to right hand of the beam D'. The pulley N is rigidly attached to this shaft M in line with the crank-pin f and pulley K, and has attached to it the lower end of the belt-pitman H'. There is also rigidly attached to the shaft M, and in line with the pulley L, the pulley O.

The saw P is situated relatively to the pulleys O and L, so that when at its upper stroke its lower end is just below the bed of the frame A. It is connected to the pulley L by the belt-pitman P' and to the pulley O by the belt-pitman P². To either end of the saw is attached the cross-head blocks $p p'$, which respectively work upon their corresponding slides, S S'. The slide S is hinged at its upper end to the beam D. The slide S' is firmly attached to beam D'.

Immediately above the wheel F is the lever-shaft T, passing through and journaled in the posts B B', its right-hand end being bent upwardly and pressing against the rear side of

the slide S. The left-hand end of this shaft projects beyond the post B, and has firmly attached to it the cam-lever T', which is forked at its lower end and fits around the cam G.

5 The power being applied by means of the shaft E, the wheel F is rotated, and by means of the pulley-belt pitmen H H' and pulleys K N gives an alternating rotary motion to the shafts M J, which in turn, by means of the pulleys

10 L O, give a reciprocating motion to the saw P. The cam G is so placed upon the shaft E that, operating upon the cam-lever T', it partially rotates the lever-shaft T (just as the downward stroke of the saw is commencing)

15 sufficiently forward to cause the upper end of the cam-lever to force the slide S forward far enough to give the desired rake to the saw, and just as the saw commences its upward stroke, by the same connecting mechanism, it

20 rotates the lever-shaft backward, throwing its upper end away from and relieving the slide S. The strain on the saw causes the same to then fall backward sufficiently for the teeth to clear themselves of the wood and permit the

25 sawdust to pass down. The belts H H' are allowed to lap a little on the pulleys K N, so as to take up any inequality in length due to the position of the crank-pin f. When it is desired to tighten or loosen the saw the pul-

30 ley L is disconnected from its ratchet-fastening and turned forward or backward on the shaft J until the required adjustment is obtained, and is then again connected to its ratchet attachment by means of a bolt or suitable device.

35 In case the lower belt, P², becomes stretched, or having been broken and mended, or for any other reason becomes too short, the pulley O is disconnected from its ratchet-fastening and turned forward or backward on the

40 shaft M until the required adjustment is obtained, and is then again connected to its ratchet attachment by means of a bolt or other suitable device.

The rake of the saw may be regulated by

45 turning the cam-lever T' back or forward upon the lever-shaft T, it being secured from moving during the work by a set-screw or key.

The belts P' P² may be of any flexible material, but are preferably of leather or rubber.

50 Their mode of connection with the saw is to be made in any suitable manner. A preferred form of connection is shown in the drawings, where the belt is formed with or provided with an eye, W, attached to the bearings p p', which

55 latter are preferably made of rawhide. Through the end of this eye is a slot, which latter receives the end of the saw, and a pin, a, passed through the eye W and through the hole in the end of the saw-blade, and fastened from

60 slipping out by a pin or other suitable device securing the saw in position. Obviously the saw can thus be readily connected to or disconnected from the belt P' or P².

While the particular means described for

65 causing the bearing-piece S to be advanced and allowing the latter to retrograde are prefer-

ably those shown, obviously many other modes and means for accomplishing the forward and backward movement of said piece may be employed, and these, in connection with said bearing-pieces S, will fall within the scope of my invention. 70

The lower bearing, P², is so fixed as that when the saw is at the top of the stroke the perpendicular line of the lower bearing is in advance 75 of the perpendicular line of the upper bearing, P', and the lower bearing is preferably placed farther in advance of the upper bearing in sawing soft timber than in sawing hard timber. Advancing and retracting of the bearing P' 80 one inch at the top of the machine is worth two inches of advance and retraction of bearing P² at the bottom of the machine in accomplishing the purpose heretofore stated. The advancement and retraction of the bearing- 85 piece P' imparts to the saw a raking motion, which facilitates the cutting process.

One or more of the various features of my invention may be employed without the remainder, and also, when desired, in connection 90 with other devices, and will still then fall within the scope of my invention. For example, a mode of turning the shafts J M may be employed different from that shown, but used in conjunction with the other features of my inven- 95 tion.

The advantages of operating a saw by means of said straps &c., as herein described, thereby dispensing with rods, bolts, &c., and much of the weight and customary breakage to which 100 these latter are liable, are too apparent to require further elaboration.

The various features which I claim as new and of my invention, and desire to secure by Letters Patent, are as follows: 105

1. The combination of the saw P, flexible pitmen, fixed saw-bearings S', oscillating saw-bearing S, positive-acting lever T for advancing the upper end of the saw and imparting to the latter a raking cut during its down- 110 stroke, and for permitting the upper end of the saw to be retracted and the teeth to clear themselves of the wood as the saw rises, and connecting and operating mechanism, substantially as and for the purposes specified. 115

2. The combination of the saw and flexible pitman P², and mechanism, substantially as described, for drawing down said strap and allowing it to be raised, and flexible pitman P', wound around pulley L on shaft J, and the ratchet l 120 l', connected to said shaft and pulley, substantially as and for the purposes specified.

3. The saw P, connected to the shafts L and O by the flexible pitmen P' P², in combination with the wheel F and straps H H', one 125 end of said straps being connected to the shafts J and M, the other ends of said straps being attached to the crank-pin f on the face of the crank-wheel F, substantially as and for the purposes specified. 130

4. The saw P, connected to the shafts J M by the flexible pitmen P' P², and provided

with bearing-blocks $p p'$, in combination with the fixed bearing or way S' and the oscillating bearing or way S , and means, substantially as described, for imparting an oscillating motion to said bearing S , substantially as and for the purposes specified.

5 5. The saw P , connected to the shafts $J M$ by the flexible pitmen $P' P^2$, said shafts being provided with means for imparting to it a reciprocating motion, in combination with the
10 fixed bearing S' and oscillating bearing S , and the rock-shaft T , provided with crank-lever T' , caused to engage with the cam G , attached to the shaft E , to impart a rocking motion to said
15 rock-shaft, substantially as and for the purposes specified.

6. The combination of the saw, flexible pitmen, fixed bearing S' , and oscillating bearing S , rock-shaft T , one end of which is bent, substantially as shown, and rests against one side
20 of said oscillating bearing S , the other end of said rock-shaft being provided with a crank-

lever, T' , having a forked extremity, and the cam G , connected to the driving-shaft E , the forked extremity of said crank-lever engaging
25 with said cam, substantially as and for the purposes specified.

7. The combination of the saw P , connected to the shaft J by the strap P' and to the shaft
30 M by the strap P^2 , the fixed bearing S' , and the oscillating bearing S , in combination with the wheel F and cam G , attached to the driving-shaft E , the connecting - straps $H H'$, attached to the driving-shafts J and M and to
35 the crank-pin f on the face of the crank-wheel F , and the oscillating shaft T , provided with crank-lever T' , to engage with the cam G to impart an oscillating motion to said shaft and to the oscillating bearing S , substantially as and for the purposes specified.

ALEXANDER MCCREIGHT.

Witnesses:

JOHN J. MOLLOY,
E. R. HILL.