

T. H. CUSHING.
SAWING MACHINE.

No. 60,621.

Patented Dec. 18, 1866.

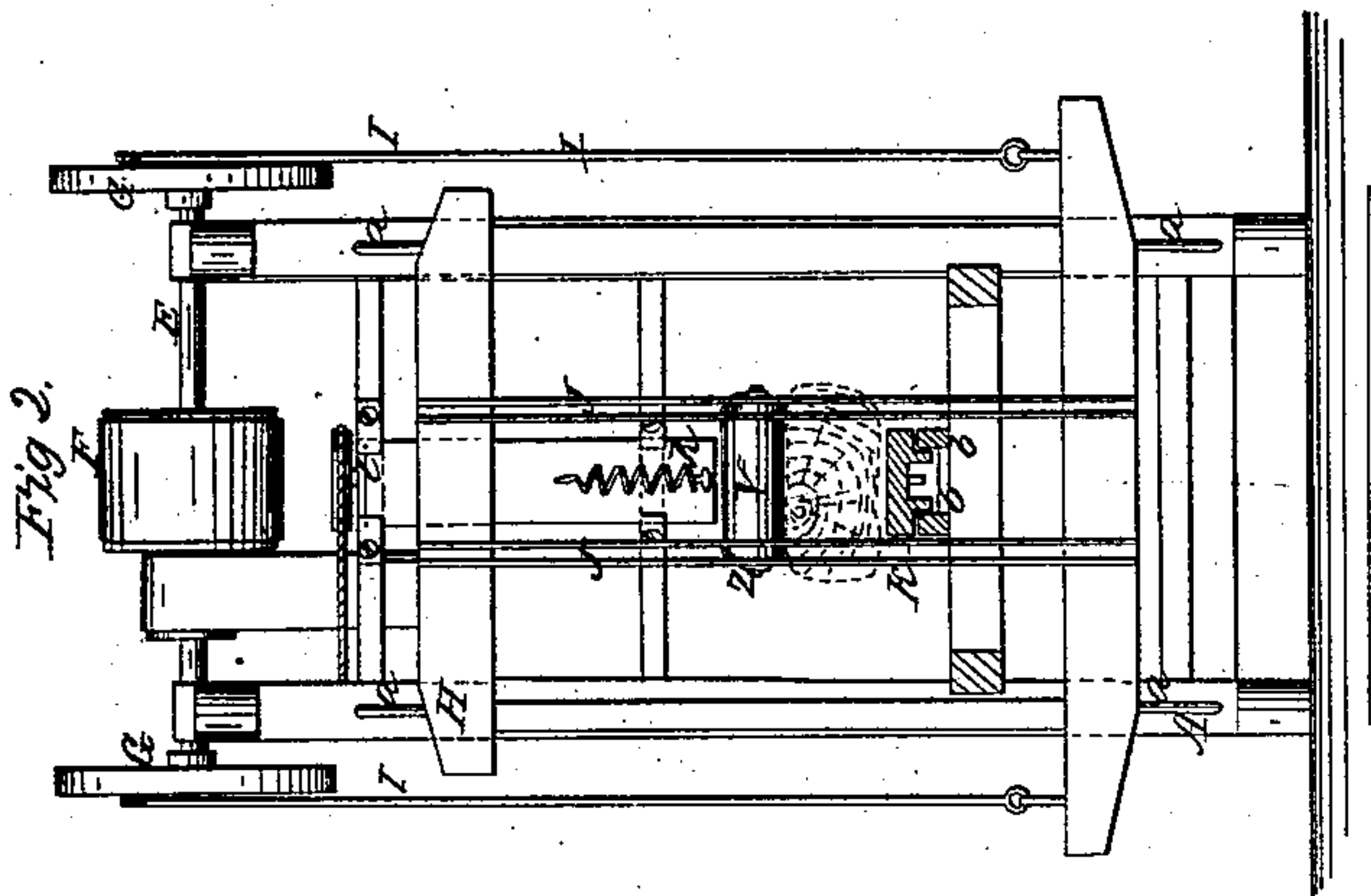


Fig. 2.

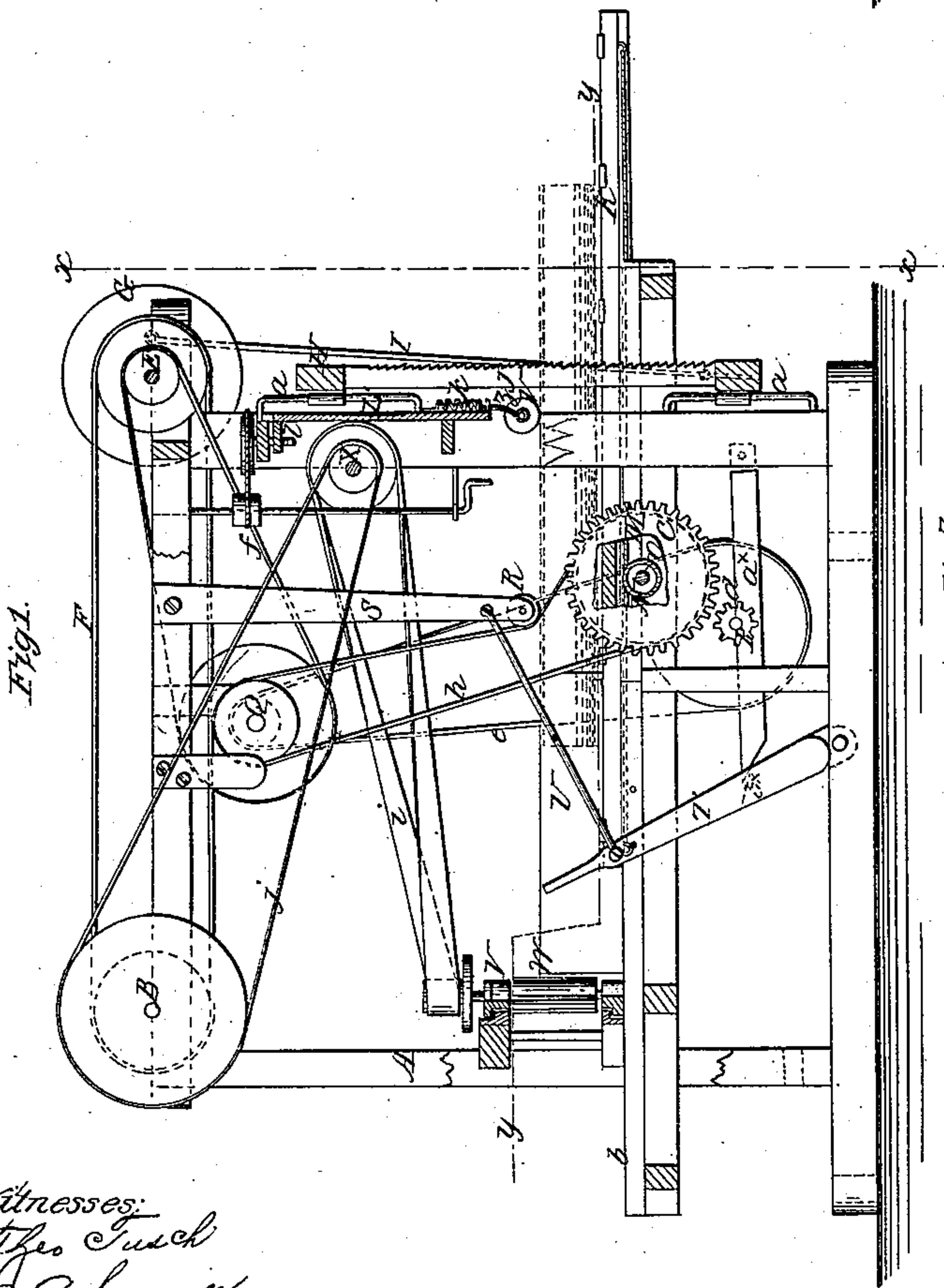


Fig. 1.

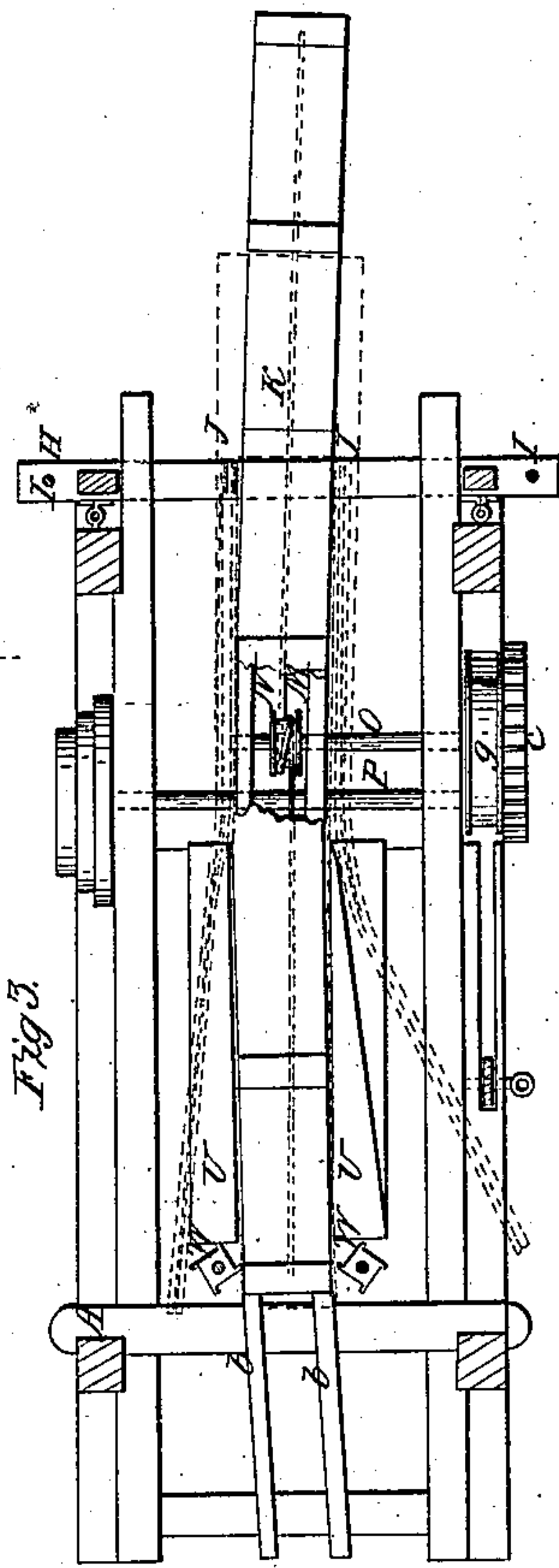


Fig. 3.

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IMPROVEMENT IN SAWING MACHINES.

T. H. CUSHING, OF DOVER, NEW HAMPSHIRE.

Letters Patent No. 60,621, dated December 18, 1866.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, T. H. CUSHING, of Dover, in the county of Stafford, and State of New Hampshire, have invented a new and improved Sawing Machine; and I do hereby declare that the following is a full, clear, and exact description, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my invention.

Figure 2, an end sectional view of the same taken in the line *xx*, fig. 1; and

Figure 3, a horizontal section of the same taken in the line *yy*, fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and improved machine for sawing timber in curved form, such as is used for ships, bridges, &c., &c.

The invention consists of two or more reciprocating saws, rotary planers, and a bed or carriage which moves in the arc of a circle, all arranged to operate in the manner as hereinafter fully shown and described, whereby the work may be done in an expeditious and perfect manner, the reciprocating saws cutting the curved sides of the stick, and the planers finishing or smoothing the same, and the bed or carriage rendered capable of being giggered back with the greatest facility.

A represents a framing which may be constructed in any proper manner to support the working parts of the machine, and B is a driving shaft placed on the upper part of one end of the framing, and having two pulleys, C D, upon it. E is a shaft placed on the upper part of the framing at its opposite end, and driven from the shaft B by a belt, F. The shaft E is provided at each end with a crank-pulley, G, from which a saw-sash or gate, H, is operated by rods, I I. This saw-sash or gate may be constructed and arranged in the usual manner, working on guides, *a*, attached to the framing A. In the present instance four saws, J, are shown, fitted in the sash or gate H, two to work at each side of the stick, the saws cutting a slab and a board from each side of the stick. K represents a carriage or bed on which the stick to be sawed (shown in red) is placed. The carriage or bed is of curved form longitudinally corresponding to the curvature in which the stick is to be sawed, and said carriage or bed is fitted and works upon curved ways or guides, *b*, secured horizontally in the framing. The carriage or bed, K, is moved along and the log fed to the saws by means of a chain or cord, M, the ends of which are attached to the ends of the carriage or bed, said chain or cord passing around a pulley, N, on a shaft, O, placed transversely in the framing A, and receiving its motion by means of a toothed wheel, *c*, which is on one end, gearing into a pinion, *d*, on a shaft, P, the latter receiving its motion by means of a belt, *e*, from a shaft, Q, in the upper part of the framing, and Q receiving its motion by a belt, *f*, from shaft E. The shaft O has a pulley, *g*, upon it adjoining the toothed wheel *c*, and a belt, *h*, passes around *g*, and a pulley on shaft Q. R is a friction-pulley fitted in the lower end of a pendent swinging frame, S, which is adjusted by a lever, T. When the log is being fed to the saws J, the belt *h* is loose, the friction-pulley R not bearing or pressing against it, the carriage or bed being moved through the medium of the chain or cord, M, from shaft O, the latter being rotated from shaft P, through the medium of the gearing *c d*. When the log is to be giggered back, the lever T is moved so as to cause the pulley R to bear or press against the belt *h*, and the latter is then made to rotate shaft O in a reverse direction, the pinion *d* on shaft P being thrown out of gear with *c* by means of the lever T actuating or letting down, when adjusted to throw R in contact with *h*, the bearing *a** of the end of the shaft P, on which the pinion *d* is fitted, the outer end of the bearing *a** being bevelled and resting on a shoulder, *b**, on lever T. By this arrangement it will be seen that the log, by a very simple manipulation, may be giggered back. At each side of the ways or guides, *b*, on which the carriage or bed works, there is a taper-bar or block, U, shown clearly in fig. 3. These taper-bars or blocks serve to force off the boards and slabs cut by the saws J. In the framing A, at the rear part thereof, there are placed two sliding or adjustable frames, V V, in which vertical rotary planers, W, are fitted. By means of the adjustable frames V, the planers W may be placed at a greater or less distance apart, to suit the width of the stick to be sawed. These planers are rotated by belt *i*, from a shaft X, in the front part of the framing, said shaft receiving its motion from the driving shaft B by means of a belt, *j*. Y is a pressure-roller which bears upon the stick to be sawed, just at the rear of the saws J. This pressure-roller is fitted in a fork, Z, secured to the lower end of a spiral spring, K, which is attached to a

vertical slide, Z', fitted in the front end of the framing A. The pressure of the roller Y on the stick may be graduated as desired by adjusting the slide Z higher or lower, through the medium of a screw, L, or other suitable device. I would remark that the carriage or bed, K, may be fitted or placed on guides, b, of different curvatures to suit the curve in which it is designed to saw the stick or piece of timber, and that the carriage or bed may be moved from shaft O by means of a rack and pinion, instead of the chain or cord M, and pulley N.

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

1. The combination of reciprocating saws J, with rotary planers W W, arranged with a carriage or bed K, placed on curved ways or guides b, for the purpose of sawing and planing sticks in curved form simultaneously or at one operation, substantially as shown and described.
2. The friction-roller R, attached to the pendent swinging frame S, which is connected to the lever T, as shown, in connection with the two shafts, O P, provided with the gears c d, the belt h, and the adjustable bearing a*, of the shaft P, arranged with lever T, to operate substantially as and for the purpose specified.
3. The taper-blocks U U, when used in connection with a carriage or bed K, working on curved ways or guides b, and reciprocating saws J, substantially as and for the purpose set forth.

T. H. CUSHING.

Witnesses:

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