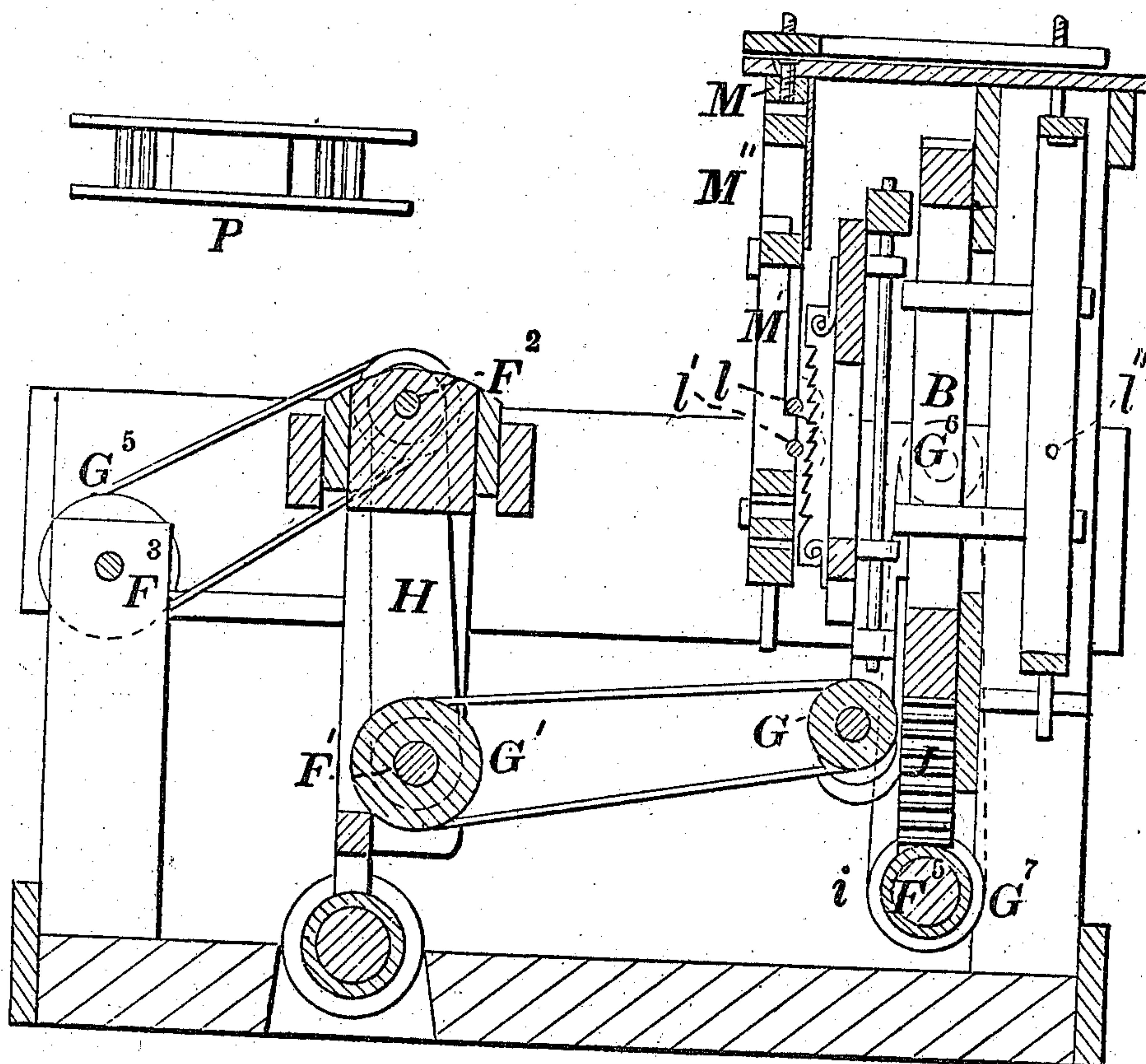


J. J. DEPUTY.
SAWMILL.

No. 42,277.

PATENTED APR. 12, 1864.



TAKEN FROM PATENT OFFICE REPORT
1864 VOL. II
ONLY DRAWING ACCESSIBLE (1911)

UNITED STATES PATENT OFFICE.

JESSE J. DEPUTY, OF PEORIA, ILLINOIS.

IMPROVEMENT IN SAW-MILLS.

Specification forming part of Letters Patent No. 42,277, dated April 12, 1864.

To all whom it may concern:

Be it known that I, JESSE J. DEPUTY, of the city and county of Peoria, and State of Illinois, have invented a new and useful Improvement in Curvilinear Saw-Mills; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a front elevation. Fig. 3 is a side view of the partially-revolving reciprocating wheel B. Fig. 4 is an edge view of the same. Fig. 5 is a vertical longitudinal section at the red line *a b* of Figs. 1, 2, and 6. Fig. 6 is a cross-section at the red line *c d* of Figs. 1 and 5. Fig. 7 is a side view of the suspended frame H. Fig. 8 is an end view of the same. Fig. 9 is a top view of the adjusting-frame P. Fig. 10 is a front view of the same. Fig. 11 is an edge view of the roller-frame M. Fig. 12 is a front view of the same. Fig. 13 is a front view of the intermediate frame, M'. Fig. 14 is an edge view of the same. Fig. 15 is an edge view of the roller-frame M'. Fig. 16 is a front view of the same. Figs. 17 and 18 are views at right angles with each other of the saw-frame C and saw C'. Fig. 19 is a scale of bevels. Fig. 20 is a face view of the piece of timber sawed to its proper bevels, and the bevels numbered on it to correspond to the scale. Figs. 21 and 22 are end views of the same. Fig. 23 is a face view of a match-piece of timber to the above. Figs. 24 and 25 are end views of Fig. 23.

Like letters in all the figures represent the same parts.

A is the standing frame, that supports the machinery. B is a wheel to which the saw-frame C is connected, and by means of which the saw C' is placed at pleasure at different bevels with the timber to be sawed, corresponding to the bevels required to the sawed stuff. The said wheel is kept in its central position by the friction-wheels *a a a a*, which bear on its periphery, and rests with its front face on the wheels *b b b b*, (see Fig. 2,) and on which it is held by the wheels *c c c c*; but, in lieu of the three series of wheels grooved wheels may be substituted to fit on the edge of the wheel B.

D D are guide-rods for the saw-frame C.

They are confined at each end in the ends of the cross-bars *d d*. On the said rods D D the boxes or bearings *e e e e* of the saw-frame C slide as it receives its reciprocating motion. The pitmen E E of the saw-frame C are actuated by the revolving shaft F, whose journals have bearings in the arms *g g*, which project from the lower side of the wheel B, (see Figs. 3, 4, and 6,) the lower ends of the pitmen being jointed to the flanges *h h* of said shaft. The shaft receives its rotary motion by means of the belt 1, which connects the pulley G on on the said shaft with the pulley G' on the counter-shaft F', which is situated in the lower end of the hanging frame H, there being on said shaft a second pulley, G², over which the belt 2 passes from the pulley G³ on the shaft F², which has its bearings in the upper end of the frame H. The shaft F² is revolved by means of its connection with the driving-shaft F³, there being a belt, 3, over the pulleys G⁴ and G⁵ of the two shafts. The wheel B is moved in either direction, so as to give the requisite bevels to the saw, by means of the following arrangement:

On the shaft F⁴ there is a pulley, G⁶. Over this pulley there is a belt, 4, which connects said pulley with pulley G⁷ on the shaft F⁵, and on the said shaft there is a worm, *i*, which gears into the segmental rack I, whose arms *j j* are bolted fast to the wheel B. (See Figs. 3 and 6.) By turning the pulley G⁶ in either direction, as the case may be, the saw is brought to the proper bevel with the timber to commence sawing, and by still turning it at the proper speed the bevel is varied throughout the entire length of the stuff. To give accuracy to the change of bevels of the saw, I have a scale of degrees on the periphery of the wheel B, which has odd numbers from the point 1 to the point 2, and even numbers from the point 1 to the point 3. This scale corresponds to scale of bevels, Fig. 19, which is used in laying off work. There is a hand, J, to which the numbers on the wheel that indicate the desired bevels are brought. There is a similar scale on the face of the wheel, with the exception that the odd numbers of the one correspond to the even numbers of the other.

For the purpose of preserving the parallelism of the shaft F' with the shaft F, as the latter is thrown out of its horizontal position

by the variations in the positions of the wheel B, the frame H is hung on center-pins *k k*, which pass through the cross-pieces A' A' of the standing frame A. The said frame has a correspondent movement with the wheel B by means of the segmental rack K on the lower end of the frame, gearing into the worm *i'* on one end of the shaft F⁶, and the endless chain L, connecting said shaft with the shaft F⁵ by means of the pulleys G⁸ and G⁹ on the two shafts. Consequently, as the wheel B is moved in either direction by turning the shaft F⁵, as above described, to give the required bevels or inclines to the saw C', corresponding inclines are given to the frame H, and its shaft F' is thereby kept parallel with the shaft F. to preserve the perfect running of the belt 1.

M is a quadrilateral frame which supports the upper feed-roller, *l*, the lower side of which is of the same height as the center of the wheel B. The said frame has center-pins *m m*, which project from its upper and lower cross-pieces, and fit in corresponding holes in the floor N and plate O, by which means it turns freely in either direction to accommodate the feed-roller *l* to any oblique or curve direction the stuff takes. The said roller has a fixed altitude, or nearly so, that its lower side, against which the face of the timber bears, may coincide at all times with the center of the wheel B; but to give the roller a little spring, to suit irregularity on the face of the timber, the uprights of the frame M have tenons *n n n n*, which fit easily in corresponding openings in the upper and lower cross-pieces of the frame. The springs *o o* are for the purpose of keeping the uprights of the frame in position, and to enable them to yield, as above stated. They are fastened at one end to the upper cross-piece of the frame and at the other to the cross-board *p*, which is fast to the uprights of the frame. The lower feed-roller, *l'*, which is supported by the frame M', is adjustable to suit the different thicknesses of timber. This is accomplished by means of the intermediate frame, M'', on the lower cross-piece of which the frame M' rests, and by turning the pulleys *q q* on the screws *r r*, which pass through the upper cross-piece of the frame M, the frame M'' is lowered or raised, as may be required to give the proper height to the roller *l'* in the frame M'. The bent springs, which is attached to the middle cross-piece of the frame M'', bears on the uprights of the frame M' to keep the frame down; but in a large mill the spring is unnecessary, the weight of the frame and timber being sufficient for that purpose. The lower feed-roller, *l'*, may, in addition to its use as a feed roller, as above described, be used to operate a carriage of the mill, by having a pinion on one end of the roller to gear into a rack of the carriage. There is a sliding frame, P, whose side pieces come on each side of the frame M, which has rollers *t t t t*, which come between the lower cross-piece, M'', and the inclines *u u* on the lower side of the cross-piece of the

frame M', and by moving the frame P in the proper direction the frame M' is canted to accommodate the lower feed-roller, *l'*, to the timber when its edges are of unequal thickness with each other. The uprights of the frame M' are weakened in their middle, as represented, to facilitate the canting of the frame. Fig. 6 shows the arrangement of the frame P, and Figs. 9 and 10 give a clear idea of its construction.

For the particular construction of the frames M, M', and M'', see Figs. 11 to 16, inclusive.

Instead of hanging the saw C' in line with its frame C, as usual, I hang it in front, as represented in the drawings. (See Figs. 17 and 18.) This is to enable the frame to turn freely in either direction to suit the different curves of the stuff and still have the saw in close proximity to the feed-rollers *l* and *l'*.

The frame M''', at the front end of the machine or mill, has a roller, *l''*, to convey the stuff back and forth to and from the saw C'. It has center pins *m' m'* projecting from its ends, which fit in corresponding openings in the plate O and cross-piece V of the uprights of the standing frame A, to allow the said frame to turn freely in either direction, like the frame M, as above specified, and for the same purpose. The height of the roller is regulated to make it correspond to that of the lower feed-roller, *l'*, by means of the pulley *q'* on the screw *r'*, which is turned by means of the belt 5, which connects said pulley with the two pulleys *q q*, that are combined with the frame M''. Consequently, when the belt moves in either direction, the frame M''' has a correspondent movement to that of the frames M'' and M', and the height of the roller *l''* is always equal to that of the roller *l'*.

Instead of having two pulleys, *q q*, in combination with the frame M'', as represented, there may be but one, which should be arranged centrally with the frame. There are pulleys *v* and *v'* on one end of the rollers *l* and *l'*, over which belts pass in any convenient manner to give motion to the rollers.

The operation is as follows: The saw is set the proper bevel to commence sawing by turning the pulley G⁶ until the saw assumes the bevel the piece of stuff has to have at its front end. Thus, for sawing the inside curve of piece No. 1, if the saw is perpendicular, the pulley is turned in the direction of the arrow until the saw is inclined to correspond with the bevel at end 1', and by the time the piece is sawed the pulley is turned regularly until it has assumed the bevel of end 1''; and this is accurately done by the use of the scale of bevels, the same bevels on the scale which are marked on the piece being brought in proper time to the index or hand P. In sawing a piece which has the bevel reversed, the opposite scale on the periphery of the wheel is used, and the bevel of the saw is reversed. The use of the two scales—viz., the one on the periphery of the wheel and the one on the face—is this: The scale on the periphery of

the wheel is used when the sawing commences at one end of a piece of stuff, and the scale on the face is used when the sawing commences at the other end of the piece.

Instead of having the scale on the periphery of the wheel, and the hand or index stationary, the case may be reversed—that is to say, the scale may be fixed or stationary, in any convenient manner, at the periphery of the wheel, and the hand P attached to it, so as to move to the different numbers of the scale. The result in the two cases will be alike.

Having thus fully described my improvement in curvilinear saw-mills, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The arrangement of the upper feed-roller, *l*, or the one that binds on the face of the timber, so as to be in line, or nearly so, with the center of the wheel B horizontally, as and for the purpose above described.

2. Combining and arranging the frame M'' with the frames M and M' substantially in the manner described, and for the purpose above set forth.

3. Constructing and arranging the frames M and M''' to turn on centers, substantially as

described, so that the rollers *l*, *l'*, and *l''* may readily assume any required position to suit any direction the stuff is required to take as it is sawed.

4. Combining and arranging the sliding frame P with the frames M' and M'', substantially as described, for the purpose of canting the frame M' to adapt the roller *l'* to the timber when the edges are unequal in thickness to each other.

5. Combining the pulley G⁶ with the wheel B by means of the intermediate pulley, G⁷, shafts F⁵, worm-wheel *i*, and rack I, constructed substantially as described, and for the purpose set forth.

6. Combining the frame H with the wheel B, by the means hereinbefore specified, for the purpose of preserving the parallelism of the shaft F and F', substantially as described.

In testimony that the above is my invention I have hereunto set my hand and affixed my seal this 25th day of September, 1863.

JESSE J. DEPUTY. [L. S.]

Witnesses:

JOHN WHITE,
STEPHEN USTICK.