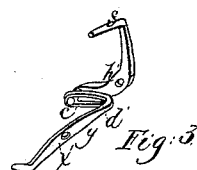
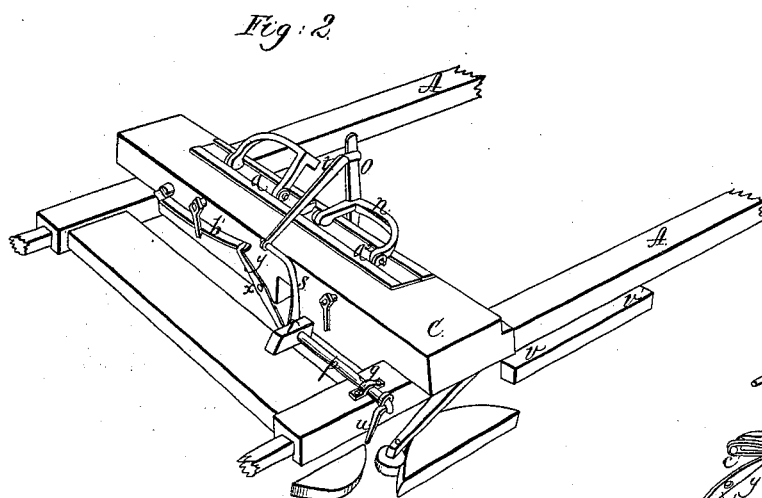
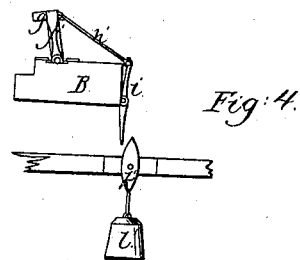
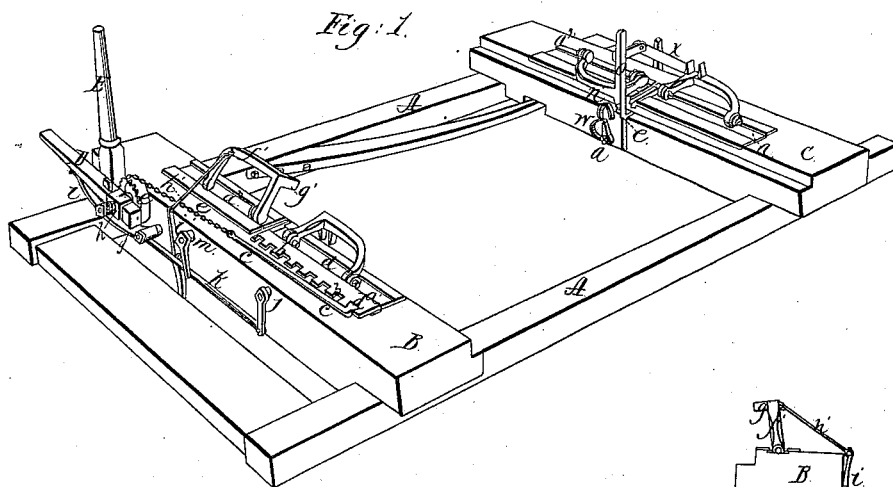


D. A. Church,
Saw-Mill Head-Block.
No. 2,051. Patented Apr. 16, 1841.



UNITED STATES PATENT OFFICE.

DAMON A. CHURCH, OF FRIENDSHIP, NEW YORK.

MANNER OF ARRANGING AND OPERATING DOGS OF SAWMILLS.

Specification of Letters Patent No. 2,051, dated April 16, 1841.

To all whom it may concern:

Be it known that I, DAMON A. CHURCH, of Friendship, in the county of Allegany and State of New York, have invented certain improvements in the manner of arranging and operating the dogs of sawmills as constructed by Hezekiah Thurber and described by him in the specification of Letters Patent granted to him and bearing date May 30, 1838; and I do hereby declare that the following is a full and exact description of my said improvement thereon.

In the accompanying drawing A, A, Figure 1, is a view of a saw mill carriage, with the head block B, and the tail block C, placed upon it. Fig. 2, is a view from the opposite end of the machine, C being the tail block.

In the head and tail blocks, the slides *a*, *a*, upon which the dogs are fixed, and the dogs also, are, in their general construction the same with those used by Thurber.

My first improvement is in the manner of shifting and setting the log on the head block. In Thurber's machine the notched piece *b*, attached to the slide *a'*, served to shift or set the log by receiving the front of a crow-bar, there being several pegs, or pins placed along in front of the notches of the slide to serve as fulcrums for the crow-bar. In the arrangement of the apparatus for shifting the log, adopted by me, it is shifted and set by means of a treadle, upon which the operator places his foot, and by this means draws the log toward him, without it being necessary to use a crow-bar, or any similar instrument; and this I effect in the following manner: *c*, *c*, Fig. 1, is a bar of iron, having a projecting piece *d*, at its end, which piece fits into either of the notches on the piece *b*, of the slide. A chain *e*, attached to the opposite end of *c*, is fastened to and may be made to wind around, the periphery of a wheel *f*; which revolves on the face of the head block.

D, is a treadle of which the pin upon which *f* revolves, is the fulcrum. The edge of the wheel *f*, toward the treadle, is cut with teeth so as to constitute a ratchet wheel, into which a tooth on the inner end *g*, of the treadle engages. The treadle is borne up against the ratchet by a spiral spring *h*, surrounding its fulcrum pin, and thus allowing the tooth on the lever to recede, or escape, from the ratchet teeth. A spring *i* bears against the under side of the treadle,

and raises it to its place, when the pressure of the foot is taken off.

E, is a vertical lever by moving which the screw *j*, that serves to loosen, or tighten the slide *a'*, may be operated. The lever E, works upon a fulcrum pin passing through it and into the head block, near its lower end, and from this end the jointed rod *k* extends to the arm *l*, of the screw; by moving the lever in one or the other direction, the screw may be acted upon by the tender of the mill while standing by the treadle D. The tightening screws *j* and *m* are similar to those employed by Thurber for fastening his slides, but by him they are both used by hand. What I claim in this part of the structure, as new, is the manner of connecting the bar *c*, with the notches, on the slide *a'*, and of operating said slide by means of the ratchet wheel *f*, and the treadle D, with their appendages as described, so as to move the slide *a'*, and set the log; the whole arrangement and combination being made as set forth. I also claim, in combination therewith, the employment of the lever E, with its connecting rod, for operating the tightening screw *j*.

On the tail block C, the dog *n* has a face piece *o*, which serves to gage the thickness of the stuff in the same manner as in Thurber's machine, the slide *a'* upon which the dog *n* is sustained being properly adjusted; but in Thurber's machine the dog *n* had to be moved out of the way by hand in order to remove the board; this part I have rendered self acting, and the manner in which I effect this will be best seen in Fig. 2. In this figure *p* is a shaft which turns in the bearings *q* and *r*, and has on its inner end a cranked piece *s*, which is attached to the free piece *o*, of the dog *n*, by a jointed rod *t*. The piece *o*, is shown in the position in which it sustains the board after it has been cut. On the outer end of the shaft *p*, is a jointed pendent *u*, by which the shaft *p*, is to be turned when the face piece *o*, is to be moved out of the way of the board. As the carriage A, A advances, the piece *u*, comes into contact with a piece of timber *v* which is fastened to the floor of the mill, alongside of the carriage and as the piece *u* swivels around on the end of *p* when the carriage is advancing, it is lifted and passes over the top of the piece *v*, there not being any action on the shaft *p*; but as the carriage is backed the piece *u* comes into contact with the end

5 v' , of the piece v , over which it passes, but in so doing it rocks, or carries around, the shaft p , and draws the dog n , over, so as to remove the face piece o , out of the way of the board, allowing it to fall over and be removed. To insure its falling over, and to remove it out of the way of the dog n , when it returns to the situation shown in Fig. 1, I use a spring piece w , which is at-
 10 tached to a rod, or shaft x , that passes through the tail block, and has on its other end x' . Fig. 2, the lever y which is acted upon and made to vibrate by the rocking of the shaft p , its lower end being raised when the crank piece s , is made to draw upon the dog n ; the spring b' , bears on the upper end of this lever, and again raises that end when the action of the shaft p upon it has ceased.

In Fig. 3, p' is the inner end of the shaft
 20 p , and s the crank piece attached to it; a pin c' on the lower end of the crank piece, passes into an opening made to receive it in the lower end of the lever y , as shown at d' , and as the crank piece is thrown out, the
 25 shaft x of the lever y is moved around, and with it the spring piece w , at its opposite end. The board which has been separated and falls over into the top of this spring piece, is pushed over by it, away from the log, and clear of the point c' , of the dog, which might otherwise fall upon and in-
 30 jure it.

When the log is shifted upon the head block by means of the treadle D , the dog f'
 35 upon the slide a^3 , may stand in the position shown in the drawing, the slide a^3 , being fastened by the screw m , in the proper position to gage the thickness of the stuff to be cut, which is done by bringing it against the side g' of the dog f' ; in order to allow
 40 the board to fall over, the dog f' must be drawn back out of its way, its operation being similar to that of the face piece o , on the dog n , on the tail block; to effect this I at-

tach a joint rod h' , to the dog f' , and to a 45 rock shaft, or lever i' , the lower end of which lever reaches nearly down to the floor of the mill so as to be brought into contact with a tripping piece attached to said floor, and op-
 50 erating on the rock shaft so as to draw the dog f' back at the proper time. Fig. 4, shows the manner in which I arrange this part of the apparatus; h' is the tripping piece placed in a mortise in the floor of the mill, and having a weight l' attached to it; 55 as the lower end of the rock shaft i' comes into contact with the tripping piece, it will, in passing in one direction, draw the dog f' back sufficiently far to relieve the board, and in the other restore it to its former po-
 60 sition; when drawn back, the board will be left free to fall over. By the arrangement for allowing or causing the board to fall over, much labor is saved in the removal of the stuff as it is sawed. 65

What I claim as new in the last described parts of my apparatus, is—

1. The manner in which I have arranged and combined the parts on the tail block, for withdrawing the dog n , after a board or 70 plank has been cut, so as to allow, and cause, it to fall over; that is to say, I claim the apparatus consisting of the shaft p , and its appendages, by which it is made to draw the dog n back, and to act upon the spring piece 75 w , the said parts being arranged substantially in the manner set forth.

2. I also claim the manner of withdrawing and replacing the dog f' , on the head block, by means of the jointed rod, rock 80 shaft, and tripping piece, arranged, combined, and operating, substantially as set forth.

DAMON A. CHURCH.

Witnesses:

THOS. P. JONES,

CHAS. H. CRAYIN.