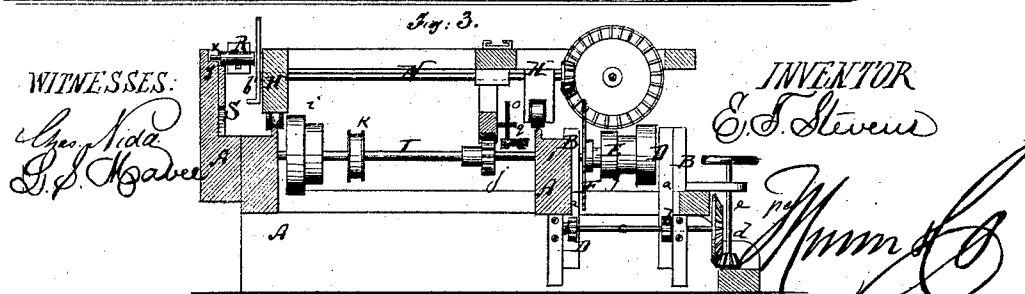
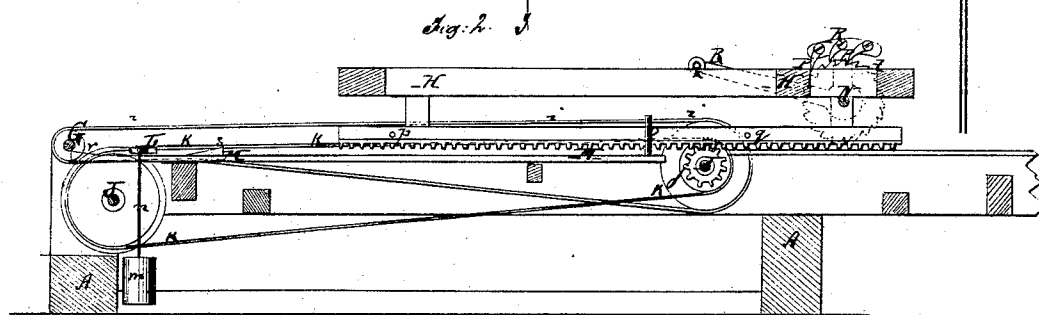
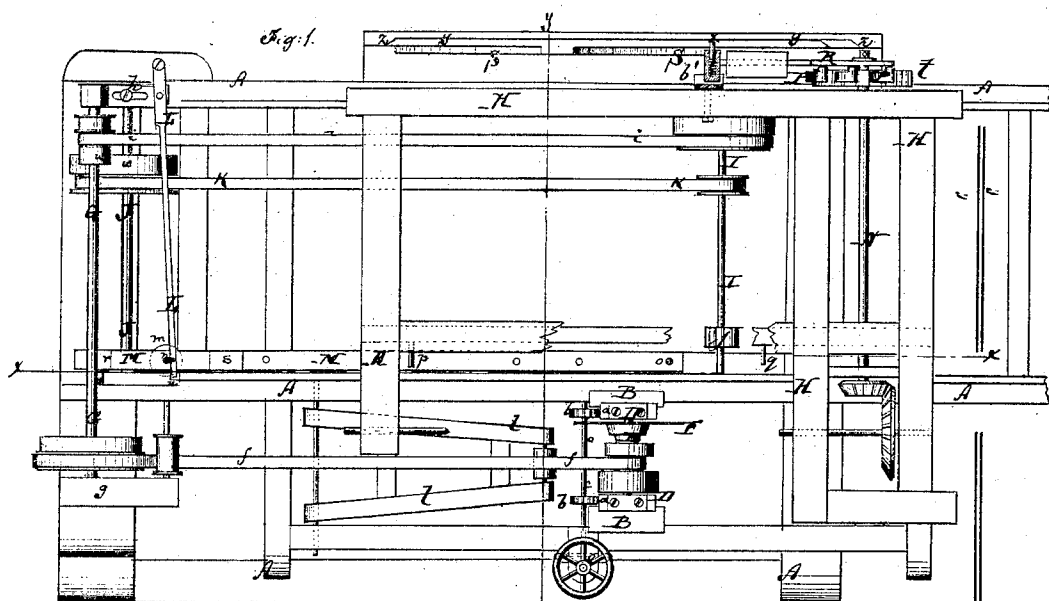


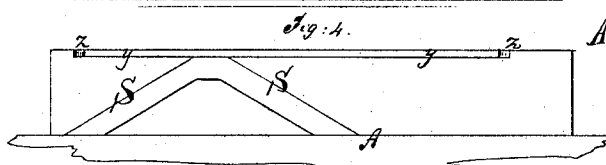
F. T. Stevens,
Circular Saw Mill.
No. 108201. Patented Oct. 11. 1870.



WITNESSES:
Geo. Nida
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United States Patent Office.

FRED. T. STEVENS, OF COLUMBIA, NEW HAMPSHIRE.

Letters Patent No. 108,201, dated October 11, 1870.

IMPROVEMENT IN SAW-MILLS.

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, FRED. T. STEVENS, of Columbia, in the county of Coos 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 thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a plan or top view of my improved sawing-machine.

Figure 2 is a longitudinal vertical section of the same, taken on the plane of the line *x x*, fig. 1.

Figure 3 is a vertical transverse section of the same, taken on the plane of the line *y y*, fig. 1.

Figure 4 is a detail side view of the incline, &c., for setting the head-block.

Similar letters of reference indicate corresponding parts.

This invention relates to a new mechanism for reversing the motion of a saw-mill carriage, and for adjusting the log on the head-block, so that the saw can be made to cut during both movements of the carriage, or only during the forward motion of the same.

The invention is more particularly applicable to clapboard-machines, and can be readily adjusted for cutting boards of any suitable thickness.

A in the drawing represents the main frame of the saw-mill.

B is the saw-frame.

D, the vertically-adjustable saw-sash, carrying the mandrel E, on which the saw F is mounted.

The saw-sash is provided with a rack, *a*, which meshes into the teeth of a pinion, *b*. The latter is mounted upon a horizontal shaft, *c*, that is, by means of bevel-gear wheels *d*, connected with a vertical shaft, *e*.

The shaft *e* has a hand-wheel or crank, by turning which the saw can be set higher or lower, as may be desired.

The shaft *e* receives motion from suitable mechanism, and transmits it by a belt, *f*, to another horizontal shaft, G, which serves to regulate the motion of the log-carriage H.

One end of the shaft G is hung in an ear, *g*, of the frame A, while the other end is hung in a slotted plate, *h*, which is arranged to slide on a bar of the said frame.

A belt, *i*, connects the shaft G with the shaft I, which carries a pinion, *j*, for imparting motion to the carriage H, meshing into a rack on the same.

A belt, *k*, extends from the shaft I to a pulley on another transverse shaft, J, which is hung in the frame A, near to the shaft G.

The belt *f* is, during all positions of the shaft G or saw-sash, properly stretched by a swinging frame, L.

The slide *h* is connected with a lever, L, which has

one end pivoted to the frame A, while its free end rests on a longitudinal bar of the same frame, being drawn down upon the same by a weight, *m*, which is, by means of a cord, *n*, suspended from said lever.

The cord *n* passes through a hole in the end of a longitudinally-adjustable bar, M, which is supported by the frame A, and has a projecting pin, O, that is exposed to the action of pins *p q*, or equivalent projections from the log-carriage.

The slide-bar M has two projecting wedges, *r* and *s*, between which the lever L rests on it.

When the lever L is in the position shown in fig. 1, *i. e.*, with its free end drawn by the weight into a notch, *u*, it draws the slide *h*, so as to hold friction-pulleys *w* on the shafts G J together, while the belt *i* will be slack. The carriage is then moved forward until the pin *q*, striking *o*, will move the slide-bar M forward with the carriage. As soon as the wedge *s* on the bar M is pushed under the lever L, it lifts the same out of the notch *u*, and releases it, so that the weight can pull it toward another notch, V, the hole in the bar M being then above said notch V. This motion of the lever causes the shaft G to be swung, so as to throw it off the shaft I, while the belt *i* is stretched. The motion of the carriage is thereby reversed.

When the pin *p*, striking *o*, moves the bar M, so as to fit the wedge *r* under the lever, the latter will be lifted out of the notch V, and moved by the weight again into the notch *u*, the hole in M being then above said notch *u*. Thus the movement of the carriage is automatically reversed, and can be made faster or slower for forward or return moves, by varying the diameters of the respective pulleys and friction-wheels.

By setting the pin O nearer to or further from the wedge *s*, the stroke of the carriage can be regulated for shorter or longer logs. The log on the head-block is moved by means of a shaft, N, hung in the carriage H. The shaft N receives intermittent rotary motion by means of a weighted pawl, P, engaging the teeth of a ratchet-wheel, *t*, which is mounted upon the shaft N. The pawl P, or set of pawls, if desired, is pivoted to an L-shaped bar, R, pivoted loosely to the end of the shaft N. The long arm of the bar R is weighted and carries at its end a transverse socket in which a sliding pin, *x*, is held, the same being thrown out by a spring concealed within the said socket. This pin *x* rests during the motion of the carriage on a horizontal track *y* of the frame A until it strikes a wedge, *z*, fixed to the end of said track.

This wedge pushes the pin *x* into the socket and causes thereby the bar R to drop, which movement turns the shaft N for setting the log.

During the return stroke the socket is gradually raised on an incline, S, until it again is in line with

the track *y*, when the pin *z* will spring out to support it. By having a double incline, *S*, as in fig. 4, and a wedge, *z*, at each end of the track *y*, the shaft *N* will be moved at the end of each stroke of the carriage, and the log consequently set for both forward and return movement of said carriage.

The device can thus be used for sawing both ways, which makes the cutting of clap-boards much more economical than heretofore. However, by leaving out one of the wedges, the setting of the log during the return stroke can be dispensed with. By bringing the wedges nearer together or further apart, the apparatus is adjusted for shorter or longer logs.

It will be seen that this machine is of simple construction and very effective in its operation, besides being adjustable in every degree to all lengths of logs and manner of sawing. It can be rigged up for portable or stationary mills, and can be readily put up wherever desired.

A gang of saws may, if desired, be mounted upon the shaft *E*, whenever the machine is to be used for single action only, *i. e.*, when cutting during backward motion of the carriage is not required. A slotted, vertically-adjustable stop, *b'*, may be used on the car-

riage for regulating the amount of motion that is each time imparted to the shaft *N* by the falling of the bar *R*.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The pivoted lever *L*, united with the slide *h*, that holds the adjustable shaft *G*, and combined with the weight *m* and slide *M*, substantially as herein shown and described, to operate as set forth.

2. The slide *M*, provided with a pin, *o*, to be set by the log-carriage, and with the wedges *r* and *s*, for releasing the lever *L* from the notches *v* and *u*, substantially as herein shown and described.

3. The weighted pawl-lever *R*, combined with the spring-pin *x*, track *y*, and wedge or wedges *z*, to operate the head-block, substantially as herein shown and described.

4. The adjustable stop *b'*, applied to the carriage *H*, in combination with the pawl-lever *R*, substantially as and for the purpose herein shown and described.

Witnesses:

FRED. T. STEVENS.

MELVIN MARSHALL,
CLARK STEVENS.