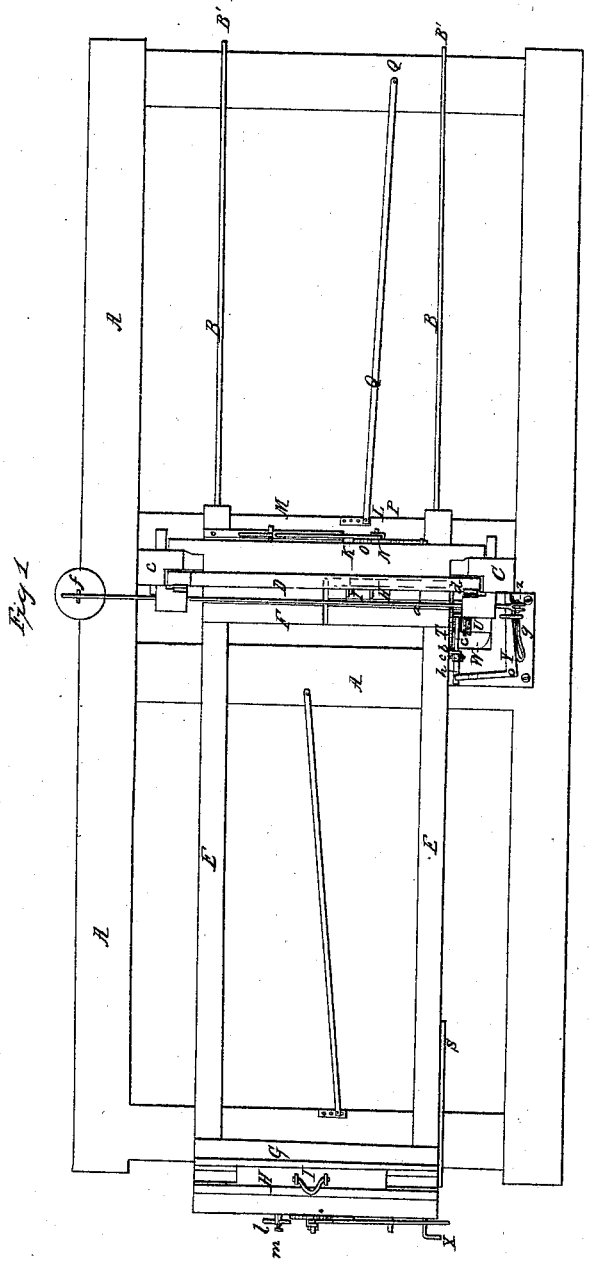
2 Sheets-Sheet 1.

N. P. Stearns,

Sarr-Mill Head-Block.

No. 3,808. Patented Oct. 30, 1844.



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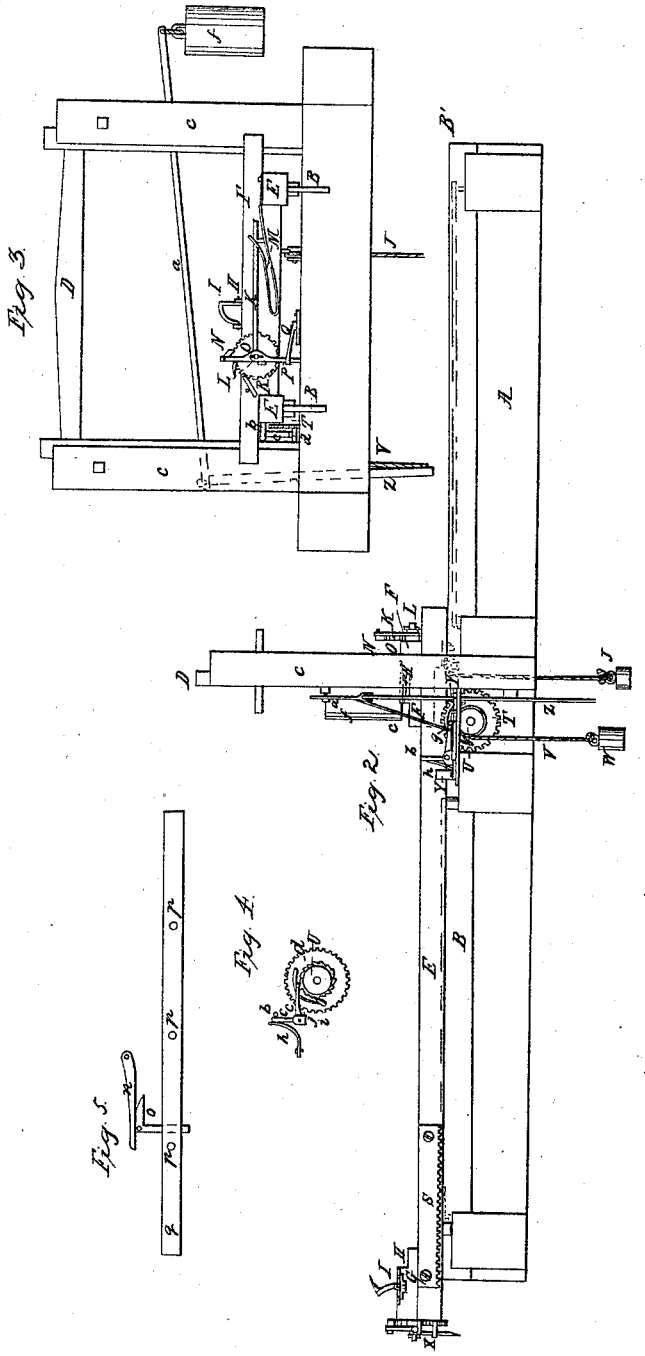

Fig. 3.

Fig. 2.

Fig. 4.

Fig. 5.

UNITED STATES PATENT OFFICE.

NATHL. P. STEARNS, OF LINCKLAEN, NEW YORK.

MACHINERY FOR SETTING SAW-LOGS AND OPENING AND SHUTTING GATES OF SAWMILLS.

Specification of Letters Patent No. 3,808, dated October 30, 1844.

To all whom it may concern:

Be it known that I, NATHANIEL P. STEARNS, of Lincklaen, Chenango county, New York, have invented a new and Improved Self-Setting Apparatus for Head and Tail Blocks of Sawmills, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a top view of the carriage, ways, and frame. Fig. 2 is a side view of ditto. Fig. 3 is an end view of ditto. Fig. 4 is a section of the drum and ratchet wheel. Fig. 5 is a sectional view of an apparatus for setting the log.

The saw mill, generally, is constructed like other saw mills in use, such as the frame A, ways B, fender posts C, saw gate D, carriage E, head blocks F, tail blocks G, slides H, bale dogs I, attached to the slides, cord and weight J for running back the carriage.

The apparatus for setting the end of the log on the head block toward the saw is made in the following manner: It consists of a right angled lever K working loosely on the round or cylindrical end of the shaft L inserted into the head block F carrying the pinion which mashes into the rack on the under side of the slide H to which the log is dogged, said lever having a long and a short arm, a spring M fastened to the carirage being attached to the long arm of said lever, the arm N striking against the teeth of a cog wheel O fixed to the aforesaid shaft L of the pinion on the outside of the head block F for turning said shaft. The axle passes through a round aperture at the angle of the right angled lever. On said axle outside of the lever is suspended loosely a trip-lever P having a square shoulder which comes against the straight side of the long arm of the lever K when the trip lever is moved to the right which is effected by means of an inclined bar Q attached to the frame A of the mill—the angle of which bar being changed at pleasure by inserting the pin projecting from said bar into one of the apertures in the frame.

The manner in which the aforesaid apparatus is operated is as follows: As the carriage moves toward the ends of the ways B′ the trip lever P comes in contact with the left side of the inclined bar Q by which it is made to turn loosely in the axle L producing no effect on the lever K and when it passes beyond the end of the bar Q near the end of the frame at Q^2 it falls by its gravity from the left to the right side of the bar Q then during the operation of gigging back the carriage, which is effected by the weight J the trip lever P is forced by the inclined bar Q to the right at the same time turning on the axle L and causing the shoulder of the trip lever P to press against the straight side of the long arm K of the right angled lever and at the same time moves the short arm back toward the left side of the carirage carrying with it the jointed arm N which slides loosely over the teeth of the cog wheel *o* without producing any effect thereon and at the same time by the raising of the long arm of the lever K the spring M is opened or extended. Now, when the trip lever has passed beyond the end of the inclined bar Q next the saw and nearest the right side of the frame the spring in its effort to close or contract itself draws down the long arm of the lever at the same time bringing forward the pushing arm N which is now made to act on the cog wheel *o* causing it to turn and with it the axle L and the pinion thereon which works in the rack on the under side of the dog slide H which is carried toward the saw with the log dogged thereto the distance required and thus the set of the log is effected.

The end of the log resting upon the tail block and dogged to the slide of the same, is moved toward the saw in a manner similar to that just described and by an apparatus constructed like that on the head block the inclined bar acting on the trip lever being placed on the opposite side of the saw from that above described and inclined in an opposite direction or so as to produce the required result.

The cog wheels are prevented from turning back by means of pawls, R attached to the head and tail blocks.

The aforesaid right angle levers K may be used by hand for setting the log, the degree of set being determined by a gage bar *l* passed through a projecting block of the head or tail block and held at the required position by a screw *m* the movement of the lever being determined by said gage bar against which it strikes, having its motion arrested thereby.

The self setting apparatus of the head and tail block may also be operated by giving to the trip lever a longitudinal action instead of a transverse movement, and one of the modes by which I propose to accomplish this is to place a lever *n* at the end of the head or tail block under the long arm of the right angle lever K for the purpose of raising said long arm the said additional lever *n* to turn on a pin inserted into the end of the head or tail block, which lever to be raised by means of a segment lever *o* placed under it and caused to vibrate for producing the intended effect by causing its vertical or hanging limb to come in contact with a series of adjustable or changeable pins *r* inserted into a horizontal longitudinal bar *q* aranged on the frame near the side of the carriage and parallel with it, the setting operation to take place at the termination of the gigging back of the carriage by the tail of the segment lever striking against said pins.

At the termination of every cut and while the carriage is moving toward the end of the ways B′ the water gate is shut which stops the mill. The shutting of the gate is effected in the following manner. When the carriage has arrived nearly at the end of the ways a short rack *s* fastened to the side of the tail block-end of the carriage is brought into gear with a cog wheel T carrying a drum *v* which are turned together, the drum winding up a cord or chain V to which a weight W is suspended and the carriage continuing to advance a pin X projecting from the carriage strikes an arm of a horizontal right angled dog Y turning on a vertical pin inserted into this frame which turns said dog and draws is from a notch in the gate pole Z which thus liberates it and allows the gate which is attached to the opposite end of the vibrating beam *a* from that at which the gate pole is attached, to descend by its gravity and thus shut off the flow of the water in the flume and stop the mill.

While the carriage is being gigged back and when the saw is in the groove of the head block a pin *b* in the side of the carriage near the head block strikes a right angled spring dog *c* and raises it from the teeth of the ratchet wheel *d* on the drum U and being thus disengaged allowing the weight W to act on it in reversing its motion to wind up a rope *e*, attached to the vibrating gate bar *a* for drawing down one end of said vibrating beam and at the same time raising the other end to which the gate is appended as at *f* Fig. 3 and thus start the mill. As the gate pole descends the horizontal right angle dog is forced into the notch of the gate pole by a spring *g* attached to the frame and is there held until again disengaged. As soon as the pin *b* passes by the dog *c* the spring *h* again forces it into gear with the ratchet wheel *d*.

The cog wheel T is geared to and made to turn with the drum V by the pawl *i*, spring *j* and ratchet *d*, and when the carriage is gigged back and the rack *s* in gear with the cog wheel T the motion of the latter will be reversed, but no effect will be produced on the drum as it will turn loosely on the axle thereof—the pawl *i* slipping over the teeth of the ratchet *d*.

The rubbing surfaces of the fender posts and saw gate are lined or covered with plates of metal to render them more durable.

I do not claim as my invention the combination of the right angle lever with its jointed arm and the trip lever operated by the inclined bar to set the log as this has been applied to set the tail end of the log the levers being brought back to their appropriate position for a repetition of this action by a spring—but

What I claim as my invention and desire to secure by Letters Patent is—

1. Reversing this arrangement in combination with the head block of a saw mill carriage so that the lever is brought back for a repetition of the action by the inclined bar and the log is set by the spring the moment the lever is relieved from the inclined bar.

2. I also claim the combination of the cog wheel ratchet wheel drum and axle operated by the rack on the side of the carriage with the dogs, springs, cords, weights, pole and bar for opening and shutting the water gate in the manner and for the purpose set forth.

N. P. STEARNS.

Witnesses:
WELLS H. BOWEN,
IRA. D. EVERSON.