

June 1, 1915.

DRAWING

1,074

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# UNITED STATES PATENT OFFICE.

EDEN BALDWIN, OF ASHFIELD, MASSACHUSETTS.

## SAWMILL.

Specification of Letters Patent No. 1,074, dated January 31, 1839.

*To all whom it may concern:*

Be it known that I, EDEN BALDWIN, of Ashfield, in the county of Franklin, and State of Massachusetts, have invented a new and useful Improvement in Sawmills, being a new method of setting the log to the saw, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a perspective view of the apparatus for setting the log and of part of the saw mill. Fig. 2, is a horizontal section of part of the apparatus of the head block on the line *a, b*, of Fig. 3, showing a top view of the male and female screw for moving the stock hereafter described. Fig. 3 is a vertical cross section through the center of the screws, and ways, of the head block. Fig. 4, view of the side of the upright weighted rack toward the carriage and of the pinion for raising said rack. Also the spring catch and lever and rod for moving the same. And also the post against which the vertical rack moves and the parallel perforated plates and pin for gaging the fall of the rack. Fig. 5, top view of the lever and rod for moving the spring catch and causing the weighted rack to fall. Fig. 6, top views of the horizontal racks into which a pinion works—for regulating the movement of the stock of the tail block by the different sections of the rack. Fig. 7, view of one of the several pins for holding the log. Fig. 8, view of the side of one of the stock plates and of the part (which encircles the way) on which the female screw is formed. Fig. 9, view of the side of the post and rack.

The letters of reference in all the figures refer to the same parts.

This improvement consists mainly in a certain combination and arrangement of parts of machinery for moving the log, at the end of every cut, toward the saw, to receive a new cut. This is accomplished principally by means of two male screws *A'*, *A''*,—one on the head block *X* and the other on the tail block *W*—turned by a pinion *B* on the end of each:—the pinion *B'* of the head block being turned by the descent of a vertical weighted rack *c* working into said pinion *B'*:—the other pinion *B''* being turned by a horizontal rack *D* made in sections of various lengths placed on the frame. The pinion *B''* is loose on the axle of the setting screw of the tail block and turns on said axle without producing any effect as

the carriage advances; but when it recedes said pinion *B''* becomes locked to the axle by means of a pawl *d* fastened to its side, dropping into a ratchet wheel *e* fastened permanently to the axle, and as the pinion moves over any portion of the rack in the receding operation it is turned and this turns the screw which moves the stock and the log toward the saw. As the carriage advances with the log the pawl again slips loosely over the ratchet wheel and thus no effect is produced on the screw. The distance that the log will be pushed toward the saw will be in proportion to the length of the section of the rack over which the pinion turns and so will be the thickness of the board cut. Each section of the rack is fastened to an iron rod *f* (turned up at one end to form a handle) to which the rack is fastened. When all the sections are pushed out and in a line the log will be moved two inches, and a two inch board will consequently be cut; but when all the sections are drawn in the log will not be moved at all, at the tail end, because the pinion will not touch them; thus according as any section of the rack is pushed out in a line with the pinion so will the log be moved.

The horizontally moving setting screws *A'*, *A''* turn in parallel bearings or upright plates *E'*, *E''*, bolted to the head-block *X* and tail block *W*, or let into them vertically by mortise and tenon—having parallel ways or round bars, *F'*, *F'*, *F''*, *F''* inserted into and secured in these bearings or plates—over which ways or bars move stocks *G'*, *G''*, having several round apertures made in each side of the stock to admit round pins *H* driven horizontally into the end of the log to hold it fast—said stock having a female screw *V* formed by inclined curved projections or sections of threads on the insides of the rounded parts of the stock plates *G'* and *G''* next the male screws in which the latter work for moving the stocks, supporting and carrying the log over the ways *F*. The sides of the stock are confined and kept together by a round or square block *Q* placed in the center of them; and the stocks are confined to the ways in such a manner that they will move loosely over them backward and forward by passing through round apertures in the lower ends of the stock plates *G'* and *G''*.

In front of the movable stocks before described are two small permanent stocks *g*, *g*

inserted into the head and tail blocks through which are passed other pins H to be driven into larger logs to assist in holding them securely. The tail block W, is furnished with similar bearings E'' E'', ways, stocks, pins, &c., to those just described on the head block. The rack D made in sections for turning the pinion on the end of the screw of the movable stock of the tail block is designed to be removed and its place supplied by other racks of different lengths according to the several thicknesses of plank required to be cut. The weighted rack or rack bar C which turns the head block screw is raised by a pinion I fast on an axle J', turned by another pinion K loose on the same axle but made fast to it when the carriage is advancing by a pawl N and ratchet O, the latter being fast on the axle and the former fast to the pinion, said pinion being turned by the rack L of the carriage as it advances toward the saw. The weighted rack C is held up by a spring catch M (resting on the frame) till required to be let fall. It is let fall by means of a pin *p* projecting downward from the carriage striking against the end of a lever Z' as the carriage recedes or is run back which lever being moved draws a rod *g* Fig. 5 with a hook at its end which embraces the spring catch which draws in the spring catch toward the weighted rack C, contracts it and thus disengages it from the frame when the weighted rack from its gravity falls and the pinion B' on the setting screw of the head block being brought into gear with the rack just before the spring catch is disengaged from the frame causes it to turn with the screw and produces the effect before mentioned of setting the end of the log on the head block toward the saw.

The pinion I below the last mentioned pinion, which is constantly in gear with the rack, turns back in an opposite direction from that in which it turns in raising the rack. In the head of each movable stock there is a slide T moving in grooves in the sides of the stock with pins passing horizontally through the ends of said slides; said slides are for the purpose of being drawn out or pushed in according to the size of log to be sawed and are secured at any position desired by screws or nuts.

The operation of this machine may be described as follows: The log to be cut into boards being properly prepared is secured to the movable stocks G' G'' by driving the pins H horizontally into the same. The setting screws A' A'' are then turned which turning in the female screws V of the stocks cause them to advance with the log laterally toward the saw and thus it is set. The gate is then raised which sets the mill in motion in the usual manner. As the carriage ad-

vances longitudinally toward the saw the rack L turns the pinion K which turns the pinion I on its axle and this being in gear with the weighted rack C raises it and when up as high as it is intended to be raised is held in that position by the spring catch M. When the carriage has advanced as far as it is intended to move and the board is cut, it is run back in the usual manner, and in running back the pin *p* strikes one end Z' of the lever *z*, moves it on its fulcrum *f* and disengages the spring catch M by means of the rod *g*, which allows the weighted rack to fall and the pinion B' of the head block being at the same time brought in contact with the rack C is turned by it which also turns the setting screw A' which moves the stock G' and the end of the log attached to it toward the saw the thickness of a board. In running back the carriage the pinion B'' of the tail block at the same time comes in gear with a section of the horizontal rack D which causes said pinion to turn and the setting screw A'' to which it is fastened and this moves the stock G'' and the end of the log on the tail block W toward the saw the same distance as before described for the head block X. The carriage and log are then advanced as before and another cut is made. In this manner the operation is continued until the log is cut up. In advancing the carriage the pinion B'' of the tail block turns on its axle by means of the pawl slipping over the ratchet wheel fixed on said axle. In running back the carriage the pinion K also turns on its axle, the pawl N slipping over the ratchet wheel O which connects it with said axle J. The turning of the screw of the head block must be made to correspond with that of the tail block by gaging the fall of the rack by the pin *h* and perforated parallel plates *i i*.

It should have been before observed that the rack C is kept in a vertical position as it rises and falls by means of a staple *l* inserted into an upright post *o, o*, of the frame and hooks *m, m*, fastened to the rack near the upper end thereof which embrace lips or turned edges of two metallic parallel plates *i, i*, fastened to said post: which plates are perforated with a number of round apertures, through which a pin *h* is inserted horizontally; upon which pin a cog *n* projecting from the rack strikes as it falls in order to gage the number of cogs that shall act on the pinion B' for the purpose of determining the distance that the end of the log of the head block shall be moved laterally toward the saw: or in other words the thickness of the board to be cut. When a thick board is to be cut the pin must be inserted through the two lower holes which will consequently cause the rack to fall lower and turn the pinion more times and of course move the log

farther; and when a thin board is required to be cut the pin must be removed to two of the upper holes which will prevent the rack falling low and of course the pinion from turning many times and the log from being moved a great distance.

The lever for contracting the spring catch of the rack to cause it to fall is merely a straight bar  $z'$  turning horizontally on a pin  $f$  as its fulcrum by means of the pin  $p$  projecting downward from the carriage coming in contact with end  $z'$  of the lever which moves the other end, to which is attached a horizontal rod  $g$ , having a hook formed on its end which takes hold of the spring catch.

Fig. 9 represents more clearly the cog  $n$  projecting from the rack  $c$  for striking upon the pin  $h$  for determining the fall of the rack and also it represents more clearly the perforations in the plates  $i, i$ , in which the pin  $h$  is inserted. And likewise a pin or stud inserted above the vertical rack to prevent its rising too high.

The invention claimed by me, the said EDEN BALDWIN, and which I desire to secure by Letters Patent consists,—

1. In the mode of setting the end of the log, on the head block, toward the saw, by means of the vertical weighted falling rack constructed and operating in the manner before described, or in any other manner substantially the same.

2. The mode of raising the vertical rack by means of the before described combination of the horizontal rack on the carriage and the cog wheels and ratchet on the lateral horizontal axle with the vertical rack into which one of said cogwheels works in the manner herein set forth or in any other way substantially the same.

3. The method of dropping the vertical rack as before described—that is to say by the combined action of the pin  $p$  in the carriage—the lever  $z'$  against which the pin strikes—the horizontal rod,  $g$  with the hook attached to the lever  $z$  and the spring catch on the vertical rack contracted by the hook and rod.

4. The method of gaging the rise and fall of the vertical rack by means of the pins in the parallel plates and upright post as before described.

5. I also claim the arrangement of the horizontal plate of iron moving in grooves in the top of the perpendicular plates, having a steel pointed slide inserted horizontally through the end thereof and driven into the log for holding it firmly to the saw, in combination with the perpendicular plates and permanent parallel bars on which they move.

EDEN BALDWIN.

Witnesses:

IRA JOY,  
ALMON WILLIAMS.