2 Sheets-Sheet 1.

G. Sweney,

Saw-Mill Head-Block.

No. 4,393. Patented Mar. 7, 1846.

Fig 1

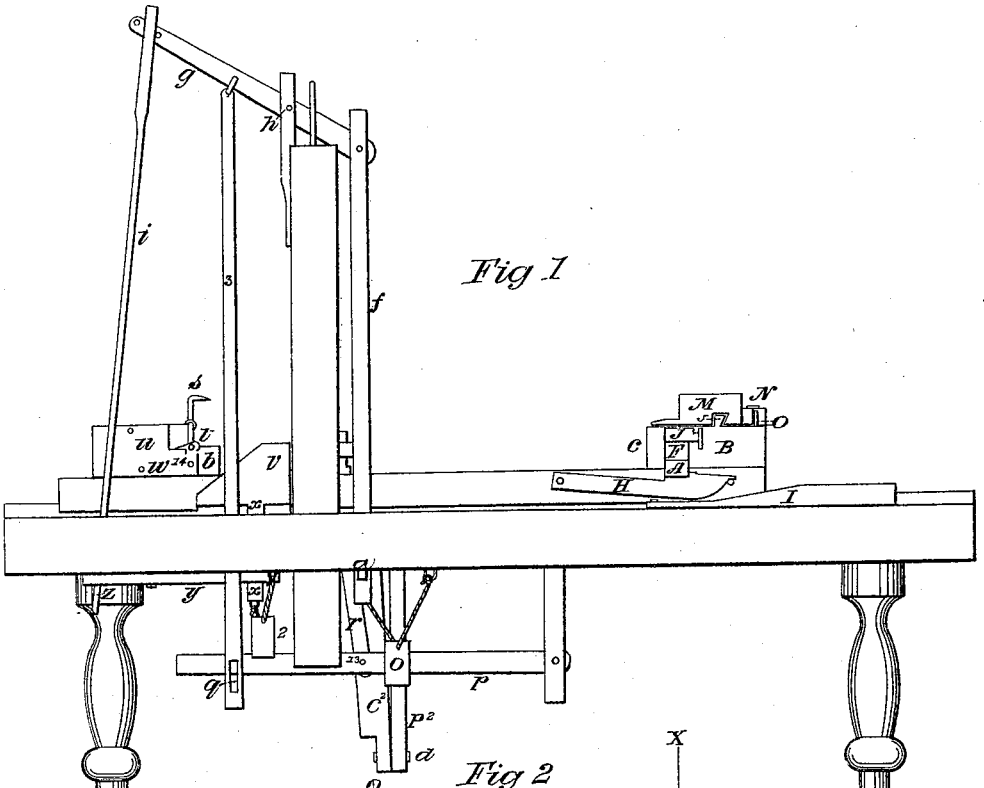
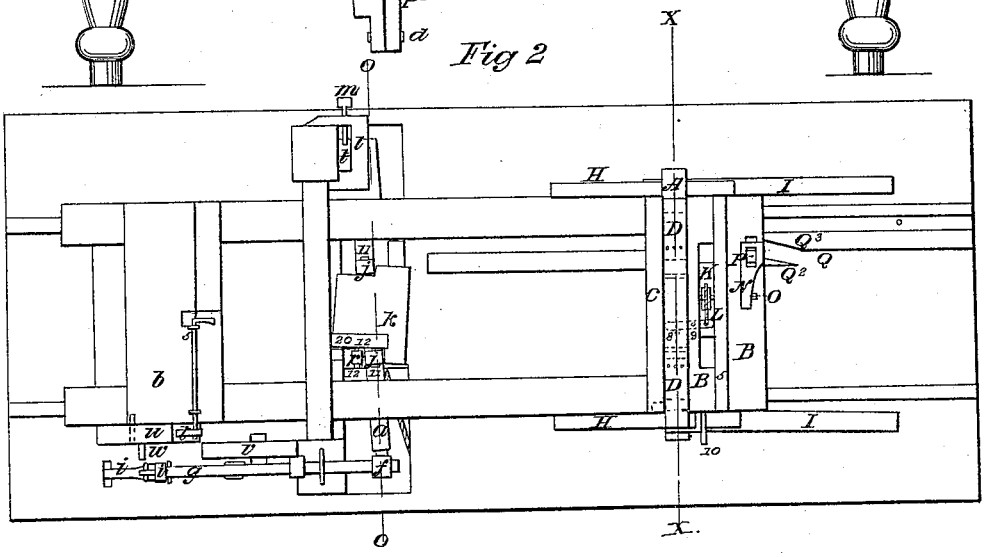


Fig 2



2 Sheets-Sheet 2.

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Fig 3

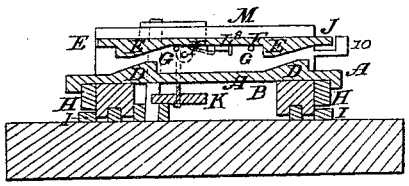


Fig 4

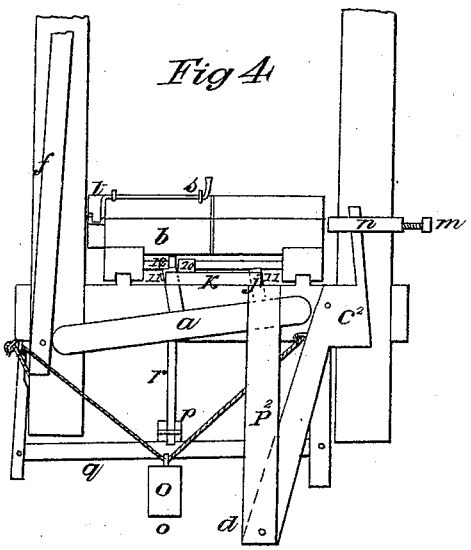


Fig 5

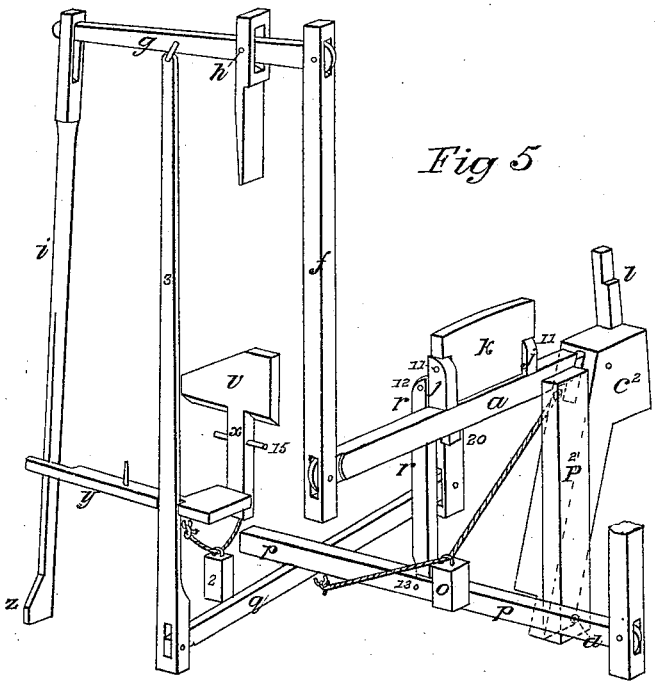
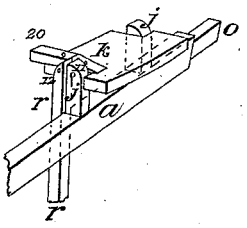


Fig 6



UNITED STATES PATENT OFFICE.

GEORGE SWENEY, OF BUCYRUS, OHIO.

SAWMILL.

Specification of Letters Patent No. 4,393, dated March 7, 1846.

To all whom it may concern:

Be it known that I, GEORGE SWENEY, of Bucyrus, in the county of Crawford, and State of Ohio, have invented a new and useful Improvement in Sawmills, being an apparatus for setting the head and tail ends of logs, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a top view of the slide and the upper or setting bar being removed in order to show the lower bar and its inclined planes and the lever and weight for throwing back the setting bar. Also the setting apparatus of the head block. Fig. 3 is a transverse section at the line *x x* of Fig. 2. Fig. 4 is a transverse section at the line *o o* of Fig. 2. Fig. 5 is a perspective view of the apparatus for setting the head end of the log detached from the other parts of the mill in order to show the same more clearly. Fig. 6 is a perspective view of the trip block in a horizontal position. The tail piece 20 bolted to the block *k* for striking against the side of the lever *a* being represented.

The apparatus for setting the end of the log resting on the slide of the tail block is self acting; that is to say it is set by the motion of the carriage in gigging back for a new cut.

The apparatus consists of a transverse bar A Figs. 1, 2 and 3 made longer than the width of the carriage it is placed between the tail block B and a parallel bearing timber C; it extends beyond each end thereof; its upper side is notched or formed with two inclined planes D, of about 45 degrees inclination produced by sinking the upper surface of the said bar, or by adding triangular blocks pinned thereto; or by other suitable means forming inclined planes, both inclining in the same direction. Above the inclined planes D are placed two inverted inclined planes E formed on the under side of a corresponding transverse upper timber F, in the same manner as above described placed over the one first described with the inclined surfaces of each timber nearly in contact. The said upper timber F is made shorter than the lower one. It is placed upon two horizontal pins G (see Fig. 3) inserted into the tail block. Both bars A and F are made to rise simultaneously, by means of two levers H whose fulcra are inserted into the sides of the carriage, being curved on the under side; at the loose end of the said levers they are caused to rise as their curved ends pass up over inclined planes I resting upon the floor of the mill and coming against the under side of the bar A lift it vertically, said bar being prevented from moving laterally by shoulders on its ends. As the bar A rises its inclined planes come in contact with the inverted inclined planes of the bar F, causing the bar F to rise, at the same time lifting slightly the slide M on which the log rests from the bearing C, and tail block B the weight of the log slide, and bar F now resting upon the inclined planes D, the bar F by its gravity and the weight thereon is caused to slide laterally down the inclined planes D of the bar A, carrying with it the slide M with the log thereon until the sidewise motion of the bar F is arrested by a shoulder formed on its under side striking against a stop formed on the tail block or against one of the pins G. The slide M having simultaneously descended upon the bearing C and tail block B and being again liberated from the bar F, and the lower bar A having descended below the bar F, and the latter being liberated from the slide M, the bar F is carried back against a gage stop J for another set, by a weight K Fig. 3 attached by a cord (passing over a pulley in the tail block) to a short horizontal lever L, turning on a vertical pin 9 as its fulcrum and bearing against a pin (8) in the bar F; said pin having previously turned or vibrated said lever and raised the weight K during the aforesaid operation of setting the log, the pin 8 being in contact with the lever.

The aforesaid gage stop J for governing the back movement of the setting bar F and consequently the set of the log, is graduated with a scale of inches and parts of inches for determining the various thicknesses of boards to be sawed. It is held securely at any point desired by means of a wedge 10 Figs. 1 and 2 or set screw, or any suitable means, inserted into the end of the tail block. The slide M moves over a dovetailed tongue (5) on the upper side of the tail block which enters a groove in the under side of the slide M of sufficient size to allow of its having the requisite movement. The log thus set is held firmly by means of a key or wedge N Figs. 1 and 2 which is forced between the slide M and a projection or stud O on the tail block by a hanging lever P let

into the wedge and passing along an oblique groove Q formed on the floor of the mill against an inclined plane Q^2, forming one side of the groove as the carriage advances; which wedge is drawn out to liberate the slide (preparatory to its being moved by the setting apparatus,) by the said hanging arm or lever P passing along the said inclined groove against another inclined plane Q^3 forming the opposite side of the groove as the carriage is run back, the withdrawal of the wedge being necessary to allow the slide to be moved by the aforesaid inclined planes D E. The inclined planes I for raising said levers are made to turn on vertical pins inserted into the floor of the mill outside of the carriage-ways when required to be turned aside from the line of the movement of the levers H for stopping the operation of the setting apparatus.

The apparatus for setting the ends of the log on the head block is operated by the attendant of the mill and is described as follows. It consists of a transverse lever *a* Figs. 1, 2, 4, 5 and 6 for raising the log from the head block *b* having its fulcrum in the head of an inclined beam C^2 turning on a bolt (*d*) in the post P^2 of the frame. The said beam C^2 when the mill is at rest, stands about 5 or 10 degrees from a perpendicular line. To it is attached the aforesaid transverse lever *a* extending under and beyond the side of the carriage and connected by a vertical rod *f* to a lever *g* of the first order, whose fulcrum *h*, is at the head of the fender post, or in any convenient place, for bringing its opposite end within a convenient reach of the mill attendant, who draws it down by a hanging staff *i*, or other article. On the upper side of the first named lever *a* are two pillars or ears *j j* containing boxes for the insertion of a horizontal axle 11 Figs. 5 and 6 passing through a turning or trip block *k* beneath the log and between said ears said trip block *k* lying nearly in a horizontal position during the operation of sawing, as shown in Figs. 2, 4 and 6 to allow the log to move over it without touching it. When it is required to set the log for a new cut the attendant lays hold of the staff *i*, draws it down causing the levers *g* and *a* to act and turn said trip block *k* (by means of the connecting rod *r* attached to the block *k* and to the lever *p* and the descent of the lever *p*) to a horizontal position as represented in Fig. 5 and bring it in that position against the under side of the log, by which the log is lifted from the head block and simultaneously it moves laterally toward the saw the distance required by the lateral movement of the upper end of the inclined movable beam C^2 until its movement is arrested by an arm *l* projecting from it striking against a gage screw *m* Figs. 2 and 4 passing through a horizontal frame *n* fastened to the opposite fender post, in which the said arm *l* moves, the movement being regulated by the gage screw *m* and the distance determined by a scale on the side of the said frame *n*. When the long end of the lever *g* is raised the levers *p* and *q* are also raised by means of the connecting rod 3 and the trip block *k* is turned down to a horizontal position as shown in Fig. 6 by means of the connecting rod *r* and at the same time the short end of the lever *g* descends and with it the rod *f*. lever *a* and block *k* with the log which is landed upon the head block in the position required. The lever *a*, turning block *k* and movable beam C^2 are then drawn sidewise back to their former positions by the descent of a weight *o* suspended by a cord to the inclined beam C^2, and to a part of the frame; which weight was raised by the lateral descending movement of the inclined beam C^2. The block is again turned, for raising the log, simultaneously with the drawing down of the staff *i* by the combination of two vibrating levers *p*, *q* and rod *r* the latter being connected to the block *k* and to the lever *p* by bolts 12 and 13 or otherwise and the lever *p* resting upon the lever *q* which is connected to the lever *g* by the vertical rod 3.

The log is fastened when the saw is running by means of a dog formed in the following manner. It consists of a piece of iron (*s*) Figs. 1, 2 and 4 of about an inch in diameter bent at right angles, and sharpened at its upper end to be drawn into the log and connected by its lower end to a horizontal turning shaft having a crank at its opposite end to which is attached a connecting rod *t* attached to a vibrating lever or block *u* turning on a bolt 14 inserted into the end of the head block; said lever being raised by an inclined plane *v* at the side of the carriage over which a pin *w* extending horizontally from the side of the vibrating lever *u* block is made to slide upward as the carriage is run back for a new set and just before setting the end of the log which raises the end of the lever and turns the crank shaft by the connecting rod which draws back the dog from the log said shaft turning in staples on the top of the head block.

As it is necessary to dog the log simultaneously with setting it, the weighted lever *u* for that purpose is attached to the end of the crank shaft of the dog and must be suddenly dropped in order to drive the dog into the log and this is effected by moving the inclined plane *v* sidewise out of the track of the pin *w* in the lever and this is done by means of a vibrating post *x* (see Fig. 5) supporting the inclined plane *v* turning on a bolt 15 near the middle thereof against the lower end of which a horizontal lever *y* is brought, moved by a cam or wedge *z* on the lower end of the staff *i* as it is

raised, which crowds one end of the lever *y*, outward and the other end inward against the vibrating post *x* causing the post *x* to move on its axes 15, the upper end containing the inclined planes *v* moving outward which allows the weighted lever *u* to drop suddenly between it and the head block. The staff being again lowered the weight 2 attached to the frame and to the lower end of the vibrating post *x* draws it back to its former position, bringing the inclined plane *v* again in a line with the pin *w* in the weighted lever to be again acted on in the manner described.

In Fig. 5 the turning or trip block K used in the operation of setting the head end of the log is represented in the position of setting, that is to say in a vertical position.

In Fig. 6 it is represented in a horizontal position and the tail piece 20 that strikes against the side of the lever *a* to arrest and hold it in a vertical position, said tail piece is not shown in Fig. 5 but shown in Figs. 2 and 4.

The pin 12 that connects the rod *r* to the trip block K is passed through rod *r* and inserted into the rod of the trip block below the centers 11 on which the trip block turns.

In order to render the description of the operation of the trip block *k* more clear it may be necessary to state that when the staff *i* is drawn down in order to turn the block *k* and at the same time to raise it against the under side of the log, that simultaneously with the ascent of the lever *a*, and descent of the lever *q* the aforesaid lever *p* descends by its gravity, as it merely rests upon the top of the lever *q;* and the trip block being connected to lever *q* by the rod *r* and the pins 12 and 13, will, of course cause the trip block to turn on its axle 11 and assume a vertical position. Then when the aforesaid levers are caused to move in a contrary direction the trip block will be made again to assume its horizontal position by means of the aforesaid connecting rod *r*. The said block *k* turning on its axles 11 alternately to a vertical and horizontal position by the alternate raising and lowering of the staff *i*.

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

The mode of setting the head end of the log when the saw is in the groove of the head block, by the aforesaid combination and arrangement of the inclined beam or post C^2 containing the fulcrum of the lever *a* and the levers *g*, *a*, *p*, *q* and the connecting rods *i*, *f*, *r*, 3 and trip block *k* by which the log is raised from the head block and moved sidewise the distance required, as described.

GEORGE SWENEY.

Witnesses:
DAVID HOLM,
E. P. QUAINTANCE.