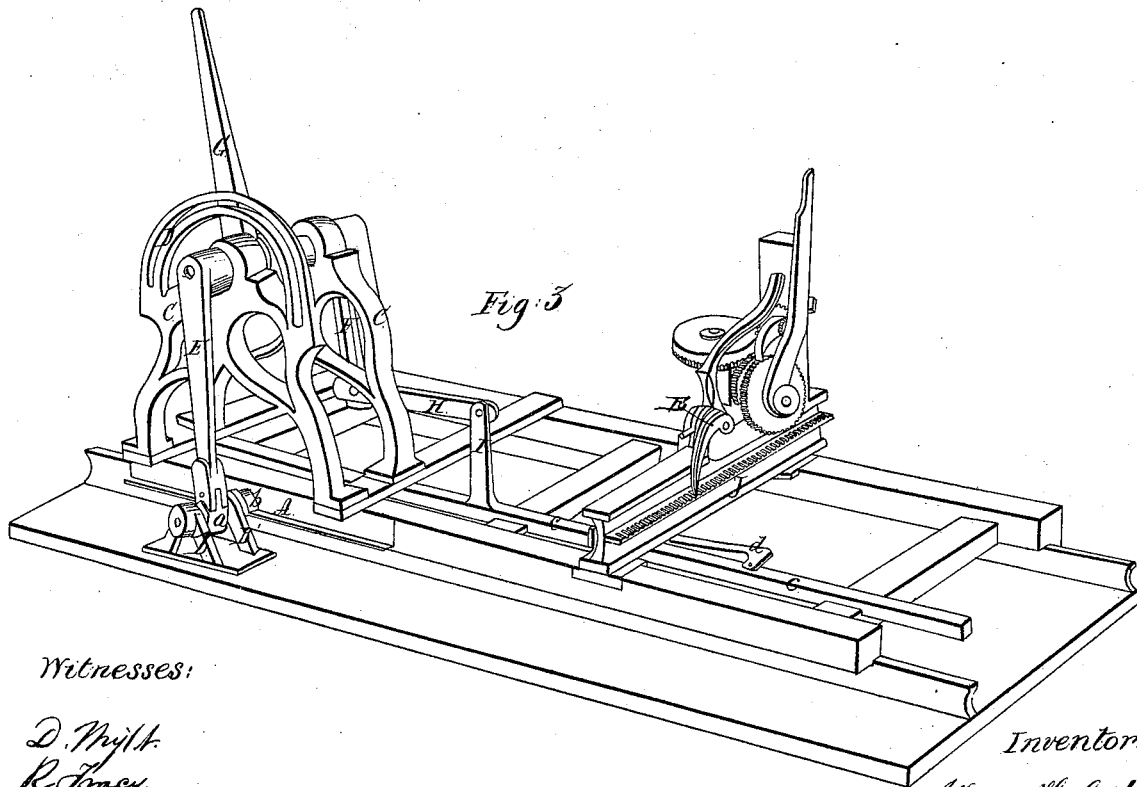
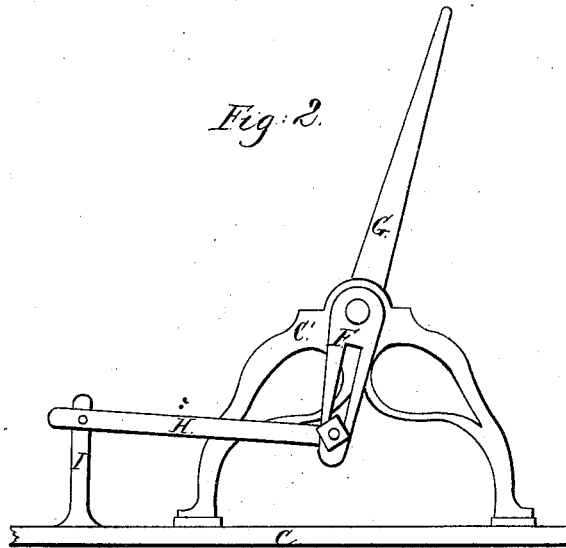
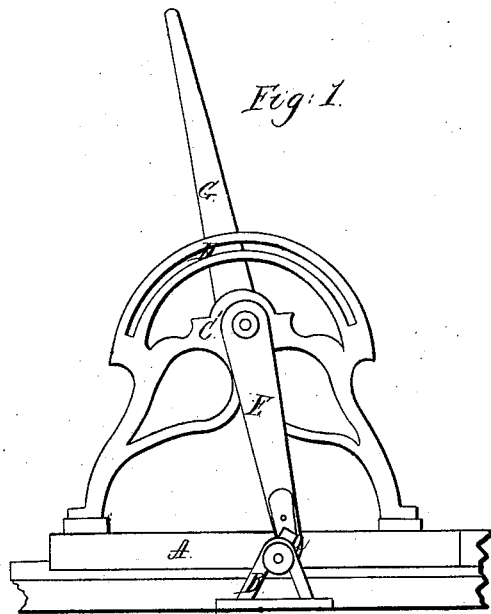


H. H. Gridley,
Saw-Mill Head-Block,
No. 54,330, *Patented May 1, 1866.*



Witnesses:

D. Myl. L.
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IMPROVEMENT IN HEAD-BLOCKS TO SAW-MILLS.

Specification forming part of Letters Patent No. 54,330, dated May 1, 1866.

To all whom it may concern:

Be it known that I, HENRY H. GRIDLEY, of the city of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Saw-Mills; and I hereby declare that the following is a full, clear, and exact description of the construction and operation of my said invention, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents, in perspective, a side view of the frame which supports the main lever with the main lever and hand-lever thereto attached, and also a side view of one of the supports of the stationary rod against which the end of the main lever presses and over which it passes when operating, and also upon its return. Fig. 2 represents, in perspective, a side view of the support of the slotted crank-lever, and also of said slotted crank-lever, and the hand-lever, the connecting-bar, and the upright standard. Fig. 3 represents, in perspective, a view of the carriage and all the machinery and fixtures carried thereby (except one of the head-blocks and its fixtures) as seen from a position at the side of the carriage and in rear of the line of the first head-block.

The same letters are used to designate the same parts in all the different figures.

The nature of my invention consists, first, in a combination of mechanism so arranged and operated as to make and govern the set of the head-blocks of a saw-mill automatically at the pleasure of the sawyer; and, second, in so forming and attaching a cam-piece to the end of the main lever as that it will always impinge upon and press against the stationary rod, so as to compel the movement of said main lever as the same is carried backward or forward upon and by the carriage.

A, Figs. 1 and 3, represents a metal plate attached to the side of the carriage, having a flange turned to a right angle outward on the lower edge thereof. Its function is to receive the wheel or roller *a* to hold down that side of the carriage.

B and B', Fig. 3, represent the stand which supports the stationary rod against which the cam attachment to the main lever presses and

over which it passes. This stationary rod extends upon the inside of the side support, B', and serves as the axle or stud for the wheel or roller *b*.

C, Figs. 1 and 3, represents the stand which supports that end of the rod which carries the main lever E, as seen when standing in front thereof. It is made of cast-iron and firmly and securely fastened to the timbers, which are laid across the carriage to receive it.

C', Figs. 2 and 3, represents the stand which supports that end of the rod which carries the slotted crank-lever F. This is a duplicate of the last above-described support, and is secured to the same timbers. These supports are connected by a rod which is extended upon each side to receive said levers E and F, which are rigidly attached so that the motion of each shall be simultaneous and equal.

D, Figs. 1 and 3, represents a slotted circular piece, which is cast upon and as part of the support C, and is intended to receive stops in the slotted part thereof, to regulate and vary the extent of the movement of the hand-lever G when that shall be used.

E, Figs. 1 and 3, represents the main lever. This lever must be of sufficient strength to sustain the strain thereon when in operation, as it is the part through which motion is imparted to all the rest of the machinery. The upper end thereof is securely fastened to the rod above mentioned. Upon the lower end thereof is cast an open jaw, with a notch at the end of each side to receive the tongue of the cam-piece *a*, which is loosely jointed thereto.

F, Figs. 2 and 3, represents a slotted crank-lever, which is securely fixed to the end of the rod, having the main lever upon the opposite end, and hence its movement must necessarily correspond therewith. Its function is to receive motion from the main lever, or hand-lever when that is used, and transmit it to the longitudinal slide-bar *c c c*.

G in all the figures represents the hand-lever when ready to be operated. It occupies a place upon the same rod which carries and connects the main lever with the slotted crank-lever, and is located between them, and by which the slotted crank-lever may be moved by hand when desired.

H, Figs. 2 and 3, represents the connecting-

bar between the slotted crank-lever F and the upright standard I upon the longitudinal bar *c c c*. Its function is merely to connect the two.

I, Figs. 2 and 3, represents an upright standard which is firmly attached to the longitudinal slide-bar *c c c*. Its function is to transmit the same motion to the said slide-bar as it receives from the slotted crank-lever through the connecting-bar H.

J, Fig. 3, represents a ratchet-bar upon which the pawls *e e* catch. It has no other function.

a, Figs. 1 and 3, represents the cam-piece connected with the lower end of the main lever E. The upper part of this piece is cast to conform to and fit the shape of the jaw of the main lever loosely. Its function is at all times, as the main lever is carried backward or forward, when it reaches the stationary rod, to press against and rise over it, causing the main lever to move as the carriage progresses. In order to insure operation it hangs loosely upon its joint, so as to allow the cam end to play slightly upward as it strikes the stationary rod and to drop slightly downward when it has passed over it.

b, Fig. 3, represents a small wheel or roller which revolves around the end of the stationary bar and travels upon the flange upon plate A. Its function is to prevent that side of the carriage from rising as the main lever passes over the stationary rod.

c, Fig. 2, and *c c c*, Fig. 3, represent the longitudinal slide-bar upon which the upright standard I is raised and to which it is rigidly fastened. Its function is to transmit the motion as received through the cranks connected therewith to the head-blocks, but which, forming no part of this invention, and being in general use, and fully described in other patents, will not be here separately described, but for a description thereof reference is hereby made to the specification annexed to Letters Patent granted to Lane and Bodley for improvements in head-blocks for circular-saw mills, which bears date September 23, 1862.

d, Fig. 3, represent pawls which catch in the ratchet J. They are made to vary slightly in length. Their function is to prevent the head-blocks from moving backward when the reverse motion is given to the longitudinal bar *c c c*.

Having thus described the several component parts of my invention, their several functions, and their connection with each other and with the longitudinal slide-bar *c c c*, I will now describe the operation and effect when operating in combination.

The sawyer should first ascertain the extent of set which will be given by fastening the end of the connecting-bar H with the slotted crank-lever F at various points, (which can be done only by actual experiment,) and graduate and mark said slotted crank-lever accordingly. Then, being ready to commence sawing, and having ascertained the set desired, he

should fasten the end of the connecting-bar H at that point upon said slotted crank-lever which will produce the set desired. He must then see that the cam-point *a* is sufficiently low to catch against the stationary rod. Then, starting the carriage forward, when the said cam *a* reaches said stationary rod it will press against it, and as the carriage continues to move the main lever will be moved backward and upward, and will continue so to do until its said cam shall have passed over and become disengaged from said stationary rod. It is apparent, also, that the extent of the motion given to this main lever must depend, in some measure at least, upon the height of the stationary rod. The slotted crank-lever F, being firmly fixed to the same rod or center of motion with said main-lever E, must at all times necessarily receive a motion in exact correspondence therewith. As this slotted crank-lever is moved it imparts motion to the longitudinal slide-bar *c c c* through the connecting-bar H and the upright standard I, and from this longitudinal slide-bar motion is transmitted to the head-blocks in the same manner as when the hand-lever is used; and as this manner of setting head-blocks has long been in public use, and is well understood, and is fully described in patents heretofore granted, and as the same forms no part of this invention, it is not deemed necessary further to describe it. Upon the return of the carriage, as it is gigged back the motion of the main lever will be reversed, and thus reversing the motion of all the other parts connected therewith except the head-blocks. The levers and other things connected therewith having been thus reversed, they are all again in the same position as at first and ready for another forward movement of the carriage. In case it is desired that the lever shall not operate upon the next forward motion of the carriage, care must be taken by the sawyer to prevent the carriage from being gigged so far back as to carry the cam *a* of the main lever entirely over the stationary rod, as in that case the lever will not be acted upon when the carriage shall again be moved forward.

From the above description it will be perceived that the same set will be given to the head-blocks at each time the carriage is moved forward sufficiently far to cause the cam *a* to pass over the stationary rod as was given on its first traverse, unless the adjustment of the connecting-bar H with the slotted crank-lever shall be changed. Hence so long as the same thickness of board is desired the sawyer will be under no necessity of extending either time or labor to set the head-block, and thus much time will be saved and hard labor avoided.

Having thus fully described the different component parts of my invention and their several functions, as also the mode and effect of their combined operation, what I claim as new, and desire to secure by Letters Patent, is—

1. Giving the desired set to the head-blocks of a saw-mill automatically by the means substantially as above described.

2. The combination of the lever E, with its cam *a*, with the stationary rod or trip over which it passes, as and for the purpose described.

3. The mechanism whereby the set may be

given to the head-blocks of a saw-mill automatically, in combination with the hand-lever to operate said mechanism by hand, as may be desired, substantially as above described.

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Witnesses:

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