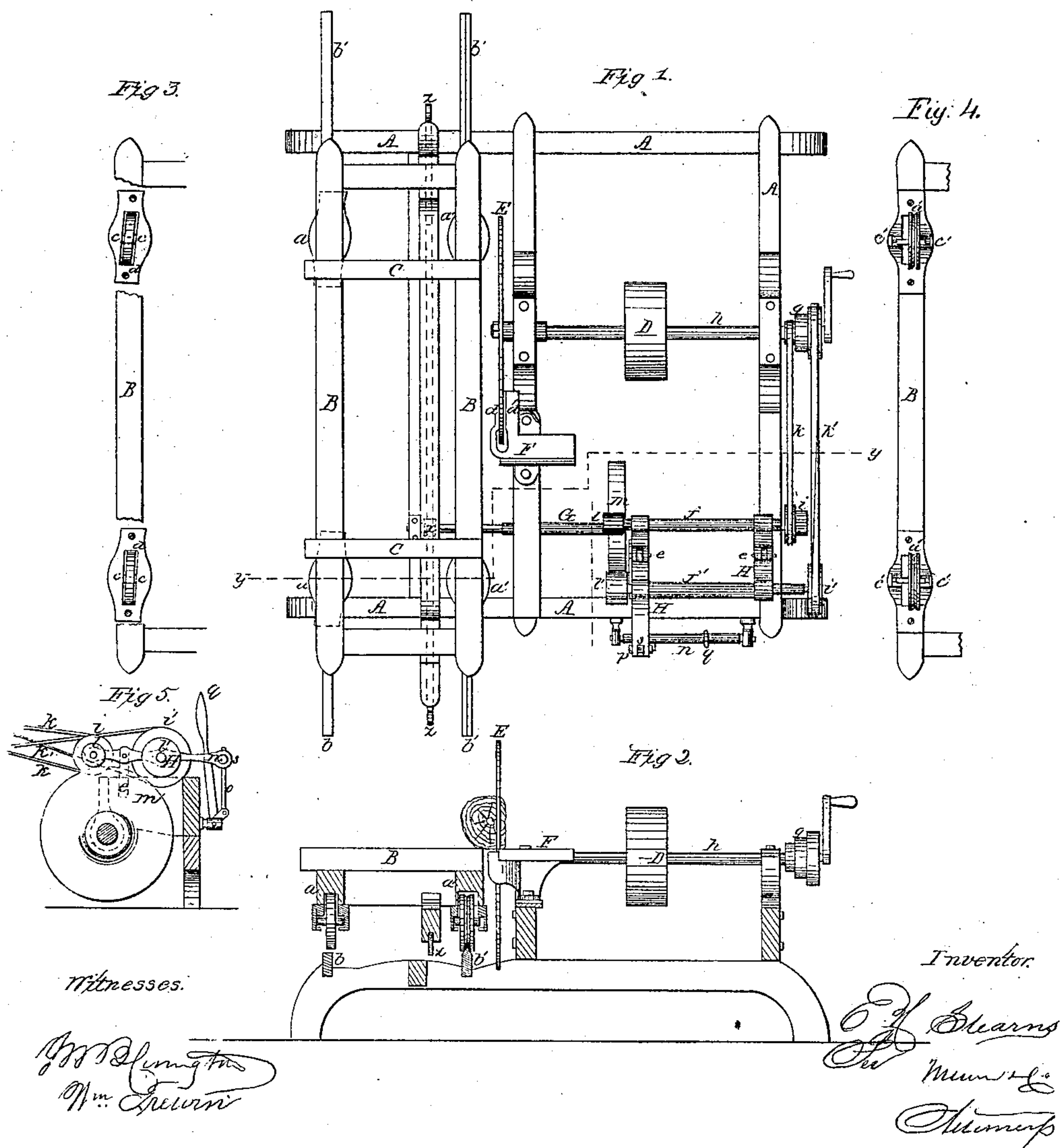


E. H. STEARNS.  
SAWMILL.

No. 60,648.

Patented Dec. 18, 1866.



# United States Patent Office.

## IMPROVEMENT IN SAW-MILLS.

E. H. STEARNS, OF ERIE, PENNSYLVANIA.

*Letters Patent No. 60,648, dated December 18, 1866.*

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, E. H. STEARNS, of Erie, in the county of Erie, and State of Pennsylvania, have invented a new and useful Improvement in Saw-Mills; 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 drawings, forming part of this specification, in which—

Figure 1 is a plan.

Figure 2 is a cross-section in the line *y y*.

Figure 3 is an inverted plan of a detached part of the carriage.

Figure 4 is the same of another part.

Figure 5 is a detached side view of the feeding and gigging movement.

Similar letters of reference indicate like parts.

My invention relates to a saw-mill, and consists in applying several novel devices and arrangements of machinery for the purpose of simplifying and reducing the cost of construction, and operating the mill easily, saving both time and material, and performing the work better. The machinery for feeding and gigging is easily applied, and the shifting quickly effected, while the friction is reduced, and the cant of the log is supported and steadied so that the last plank on the slab can always be cut with certainty and safety.

My improvement specially relates to a saw-guide or rest for supporting the log or cant while sawing or gigging, the arrangement of pulleys in connection with a rocking-frame and rock-shaft for feeding and gigging, and also in hanging and connecting the wheels or rollers on the carriage so that they bear the log toward the saw when feeding, and away from it when gigging.

To enable others skilled in the art to understand my invention, I will proceed to describe the same.

A is the mill-frame, B the carriage, C C the head-blocks, D the main driving pulley, E a circular saw, F a saw-guide; G, shaft which works the carriage, by means of the pinion *x*, that plays into the rack *z*. The carriage-wheels *a a* on the outside flat track *b* are hung differently from the wheels *a' a'*, on the inside of track *b'*. The wheels *a a* are hung on axles *c c*, placed a little out of right angles with the side frame of the carriage, so that they are set with an inclination slightly oblique to the line of the rail track, as shown in fig. 3. The wheels *a' a'*, which run on the inside track, are hung at right angles with the frame, on axles *c' c'*, but the axles are shorter than the inside of the boxes in which they run, as shown in fig. 4, allowing the wheels to shift a trifle from side to side. It will be observed, also, that the journals of the axles *c c*, on the wheels *a a*, of the outside flat track, fill the boxes at their ends, and have no side play. All the boxes have lugs at their ends, against the inside of which the ends of the journals abut and bear when running, instead of resting against shoulders, as customary, by which they have less friction and wear longer. By this arrangement of the wheels of the carriage, it will be seen that the front and rear wheels *a' a'*, on the V-track, can shift a little out of line with each other, while their movement is still in parallel lines, allowing the oblique wheels *a a*, on the flat track, to incline the carriage inward toward the saw when feeding, and draw it outward from the saw when the motion is reversed for gigging, by which the log is offset from the saw and it is relieved of friction. In order to correct the difficulty arising from the cant of the log bending over and breaking, which is often a common occurrence when the saw is cutting at a distance from the head-blocks, with them alone to support it, and the frequent loss of one board on a slab, I attach a device for supporting the cant, which forms a part of my improved saw-guide arrangement. It is represented by figs. 1 and 2, F being the support, with its upper surface level with the head-blocks C C, a part of it extending from the saw on the inside, for bearing the cant and sawed stuff, and also with arms or projections, *d d'*, on both sides of the saw, to act as the guide. The cant-support thus forming a part of the saw-guide arrangement, it is sure of being shifted and kept opposite the saw-teeth, where it is needed when the saw veers up or saws off. This support to the piece of timber overhanging the head-blocks beyond the saw, prevents one side from bearing down so as to render it liable to cut the stuff diagonally instead of square. The saw-guide is made of iron, of different sizes, to suit the work, and the cost of construction of guide and support together is less than when made separately. The arrangement for feeding and gigging is a rocking-frame H, hung in the middle on short and strong standards *e e*, at both ends, which are set in the mill-frame. It carries two shafts, *f f'*, on the outer ends



of which are pulleys, both of which are run by belts from one arbor, *g*, on the end of the driving shaft *h*. One of the pulleys, *i*, has a straight belt, *k*, and the other pulley, *i'*, has a cross-belt *k'*. On the inside ends of the shafts *f f'* are corresponding friction pulleys *l l'*, which bear upon a large pulley, *m*, on the shaft *G*, when applied for reversing the carriage. One end of the frame *H* extends outward, and is connected with a rock-shaft *n*, by an adjustable screw-rod *o*, fig. 5, which works in a round turning nut, *p*, that hangs as a pivot or journal in one end of the extended part or arm, *s*, of frame *H*, directly above the rock-shaft *n*, on which is the hand-lever *q*, for stopping the carriage and reversing the motion for feeding and gigging. The operation for shifting the action of the pulleys *l l'* on the pulley *m*, and stopping and reversing the motion, it will be seen, is very simple and prompt, as they are run in different directions by the straight and cross-belts, *k* and *k'*, on the arbor *g*. The carriage is stopped instantly by leaving the hand-lever *q* up, when neither of the pulleys *l l'* touch the pulley *m*. By this arrangement for regulating the movement of the carriage, the elevation or depression of the ends of the shafts in rocking-boxes, as usually constructed, which throws them out of line, is entirely obviated, and the whole is simple and economical in construction, certain in execution, and easily managed.

Having fully described the construction and operation of my improvement in saw-mills, I disclaim the use of a saw-guide separate and independent of the cant-support, or a cant-support separate and independent of the saw-guide, my invention, as described, being for so placing and constructing the cant-support and saw-guide in connection, that they are inseparable and act together. There is no other chance to get a support for the cant in just the right place than as arranged in my improvement, constituting, as it does, a part of the saw-guide, as hereinbefore described. Two supports are necessary, to be effectual, unless precisely where the saw-guide is, as in my arrangement, otherwise the cant may break down when beginning or finishing the cut. If placed before the guide, the cant would not be supported when the saw was finishing the cut, and if placed behind the guide, the cut would not be supported when the saw was beginning the cut. Again, if placed either before or behind the saw-guide, the cant-support is always in the way when it is necessary to shift or move the saw-guide for larger or smaller saws. On account of these difficulties cant-supports are almost universally discarded, though they are very much needed, for reasons before stated.

I also disclaim the use of an "idle" pulley, as employed in the patent of Lane and Bodley, of July 26th, 1859, or any other application of an "idle" pulley, for feeding and gigging.

I also disclaim the idea, broadly considered, of moving the log out of contact with the saw, in gigging back, by means of the angling of the shafts on which the carriage runs, as I am aware that such invention is described in a patent granted G. H. Clemens, on the 3d day of January, 1865. My invention, as far as this feature is concerned, is to be regarded, not as involving this new principle of operation, but as a radical improvement in the means for carrying into effect the principle described in said patent.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Relieving the saw from friction of the log while resting on the carriage *B*, by means of the flat wheels *a*, grooved wheels *a'*, axles *c*, and boxes *a''*, flat track *b*, and angular track *b'*, constructed and operating substantially as described for the purpose specified.

2. I claim constructing a cant-support, joined to and forming an inseparable part of the saw-guide, in such a manner that, when the guide is moved nearer or farther from the saw-arbor when changing saws, the cant-support will necessarily move with it, arranged and operating substantially as and for the purposes herein specified.

3. I claim giving motion to the log-carriage and reversing the same, by means of friction pulleys *l l'*, when caused to bear upon pulley *m*, and when rigidly fixed to shafts *f f'*, each having a continuous and positive revolving motion from belts applied to pulleys *i i'*, all constructed and operating substantially as described.

The above specification of my invention signed by me this 16th day of April, 1866.

E. H. STEARNS.

Witnesses:

JNO. B. McINTOSH,  
S. J. McKNIGHT.