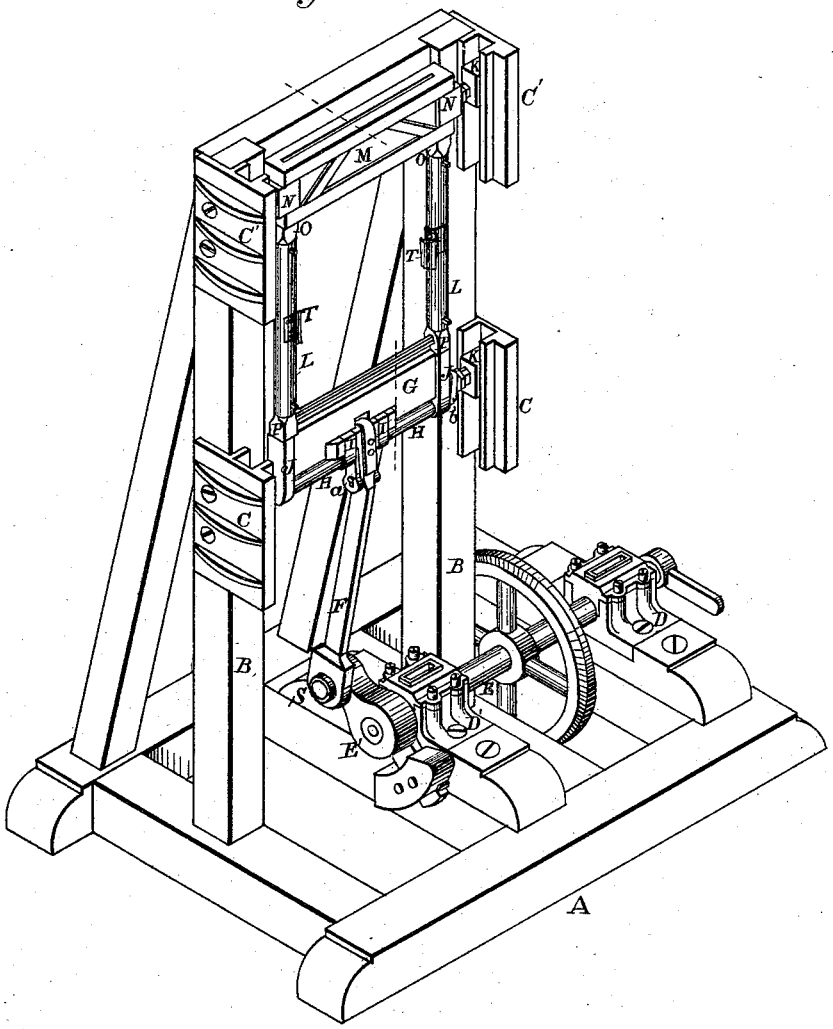
2 Sheets--Sheet 1.

A. RODGERS.

Saw-Mill.

No. 163,259. Patented May 11, 1875.

Fig. 1.



Witnesses:

F. H. Schott.

A. G. Parker.

Inventor:

Alexander Rodgers

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

A. RODGERS.

Saw-Mill.

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Fig. 7.

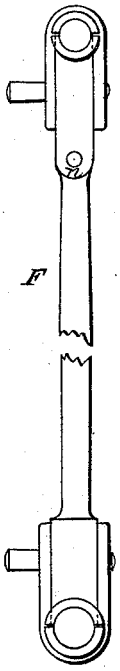


Fig. 5.

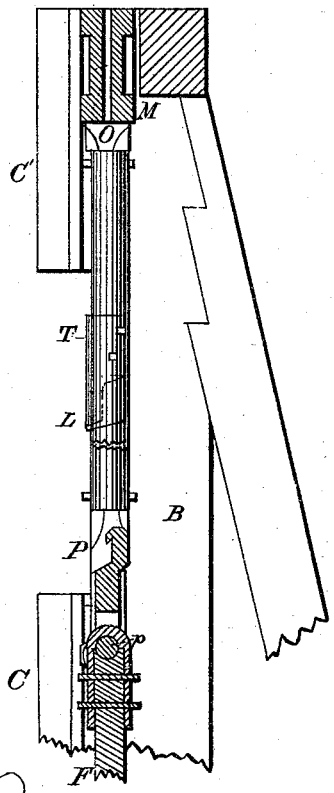


Fig. 6.

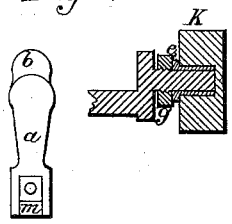


Fig. 2.

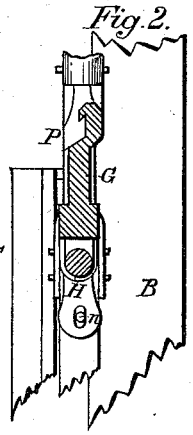


Fig. 4.

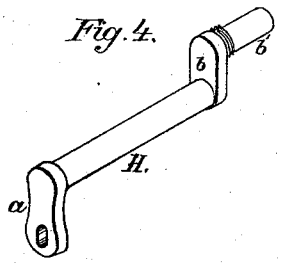
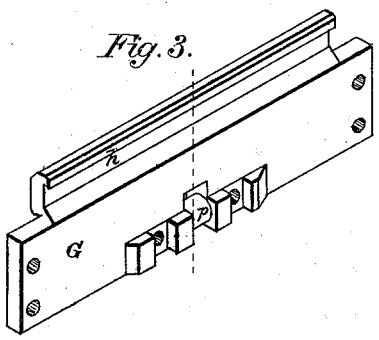
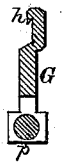


Fig. 3.





Witnesses:
F. H. Schott.
A. E. Parker

Inventor:
Alexander Rodgers

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UNITED STATES PATENT OFFICE.

ALEXANDER RODGERS, OF MUSKEGON, MICHIGAN.

IMPROVEMENT IN SAW-MILLS.

Specification forming part of Letters Patent No. **163,259**, dated May 11, 1875; application filed January 30, 1875.

To all whom it may concern:

Be it known that I, ALEXANDER RODGERS, of the city of Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements 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 which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

In the construction of saw-frames for gang-saw mills, it has been customary to form the lower girt, when made of iron, of two or more pieces united by bolts or rivets, the noddle-pin being connected to it by straps secured by bolts passing through them and through the girt. The rock-shafts which impart an oscillating motion to the lower end of the saw-frame have also been constructed by keying cranks to the opposite ends of a straight shaft.

These modes of construction have been found liable to this serious objection, that the excessive vibration caused by the rapid reciprocation and oscillation of the parts, soon causes them to work loose, and, in fact, is found to cause so great a loss of time and large expenditure for repairs as to discourage many lumber manufacturers from using gang-mills, which is much to be regretted, as they are found to produce better lumber and with less waste than any other class of mills in use.

It is to avoid these difficulties that I have made the inventions which will be hereinafter fully described and then specifically pointed out in the claims.

Figure 1 is a perspective view of the mill. Fig. 2 is a section, showing the method of attaching the rock-shafts to the girt and pitman. Fig. 3 shows a perspective view as well as section of the lower girt. Fig. 4 represents one of the rock-shafts. Fig. 5 is a section of Fig. 1. Fig. 6 shows an end and sectional view of one of the rock-shafts, adjusting-nut, and sliding block. Fig. 7 is a side view of the pitman.

A represents the bed upon which the superstructure rests. B are the fender-posts, and C and C′ are grooved slides secured to the fender-posts, within which the guide-blocks of the saw-frame reciprocate. The bed A sustains the pillar-blocks D and D′, being very large and correspondingly heavy with a great proportional length of bearing for that journal of the crank-shaft E, which is nearest to the crank. This crank may be of any ordinary form, but I prefer to use that shown in the drawings, and for which Letters Patent No. 142,816 were granted to me on the 16th day of September, 1873, as it affords an excellent means of adjusting the balance-weight to the exact weight of the saw-frame and its connections, thus relieving the driving-belt or other motor from unequal strain, and the mill from the jar and shake caused by running unbalanced machinery. The pitman F is provided with a suitable journal-box at its lower end, which embraces the crank-pin S, and is retained in position by a strap bolted and keyed to the pitman. The upper end of the pitman is also provided with journal-boxes, and a strap secured to it, in the same manner as those at the lower end which encircle the noddle-pin, forming a part of the lower girt of the saw-frame. This girt G is the portion of a gang-saw frame, to construct which so as to enable it to stand the immense and varied strains to which it is subjected, has tried the skill of mechanical engineers for many years, and its present form, which enables it successfully to overcome these difficulties has only been reached after years of costly experimenting.

It will be perceived that the noddle-pin P is forged with the body of the girt, thus forming a component part of it, without joinings of any kind, and rendering it incapable of detachment without destroying the girt. The dovetail-cleat *h*, to which the lower ends of the saw-buckle hooks are attached, is also formed from the solid forging by planing out the groove, as shown in section in Fig. 3. This sectional view will also show that all superfluous metal has been removed, leaving it as light as possible and still retain the needed strength. The ends of this girt are secured by bolts to the slotted shoulder-pieces P, the upper ends of which enter the hollow standards or columns L, and are secured thereto by keys or other suitable devices. Entering into and secured to the upper ends of these col-

umns are the shoulder-pieces *o*, attached to and carrying the girt M. This girt is constructed in the ordinary manner, with the elongated vertical slot, through which pass the straining-straps of the saws. Upon each end of the girt M is secured a bracket, N, carrying at its outer end an adjustable oscillating guide-block, K. These guide-blocks reciprocate in the adjustable slides C′, thus retaining the upper end of the saw-frame in its proper path. Attached to the girt G, by means of the straps I and J, are the rock-shafts H, with their cranked arms *a* and *b* forged from the same piece of metal as the shaft. The lower ends of the arms *a* are slotted to receive the sliding journal-boxes *m*, which are held in place and oscillate with the rock-shafts, through the agency of a pin, *n*, passing through the pitman a short distance below its upper end. The crank-arm *b* is provided with a wrist-pin, *b′*, having a screw-thread cut upon it for the reception of the jam-nut *g*. It also receives the sleeve *e*, upon which the guide-blocks *k* are placed.

It will be observed that this arrangement enables the position of the saw-frame, with relation to the slides, to be at any time easily adjusted, so as to preserve its vertical position. It also allows a free movement of the guide-blocks upon the wrist-pins during the time the saw-frame is performing its backward movement in ascending, and forward movement in descending, such motion being caused by the oscillation of the rock-shafts H, which receive a horizontally-vibrating, as well as a vertical-reciprocating, movement from the crank E′ and pitman F, thus clearing the saws from the cut during their ascent, and allowing the log to be moved forward, but thrusting them forward into the cut as they descend.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. The girt G, provided with the noddle-pin P forged from the same piece of metal as the girt, and forming a component part thereof, substantially as and for the purpose specified.

2. The rock-shaft H, provided with the slotted arm *a*, and arm *b*, with its wrist-pin *b′*, sleeve *e*, and jam-nut *g*, as and for the purpose specified.

3. The girt G, constructed as set forth, in combination with the rock-shafts H, pin *n*, and pitman F, substantially as shown and described.

4. The method of imparting an oscillatory movement to a saw-frame by means of independent rock-shafts acting upon the slide-blocks, as shown and described.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

ALEXANDER RODGERS.

Witnesses:
ROLLIN S. THOMSON,
DAVID MCLAUGHLIN.