C. E. CLEVELAND.

SAW STRAINING MECHANISM.

APPLICATION FILED DEC. 27, 1906.

919,128.

Patented Apr. 20, 1909.

3 SHEETS—SHEET 1.

Fig. 1

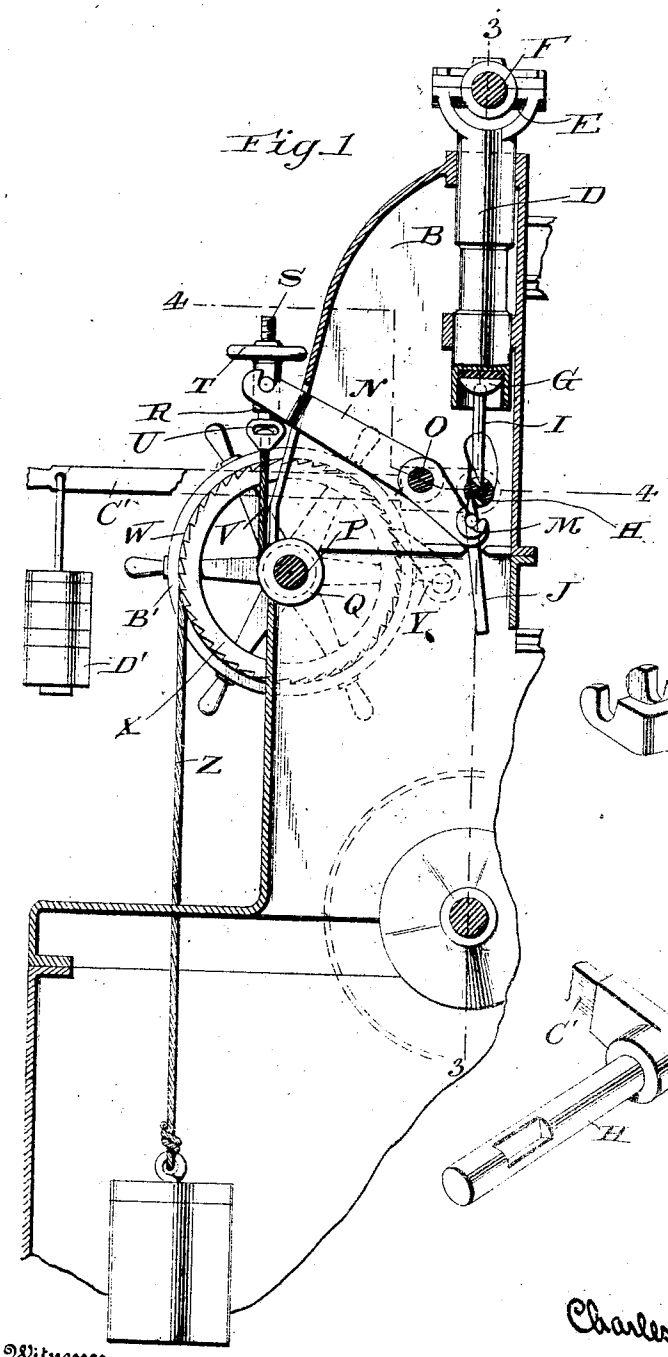


Fig. 6.

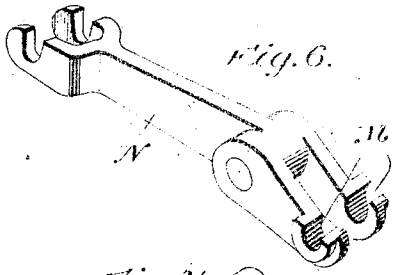


Fig. 7.

Witnesses:
C. A. Ruder
J. B. Malnati

Inventor:
Charles E. Cleveland,
By Dodge and Sons,
Attorneys.

C. E. CLEVELAND.

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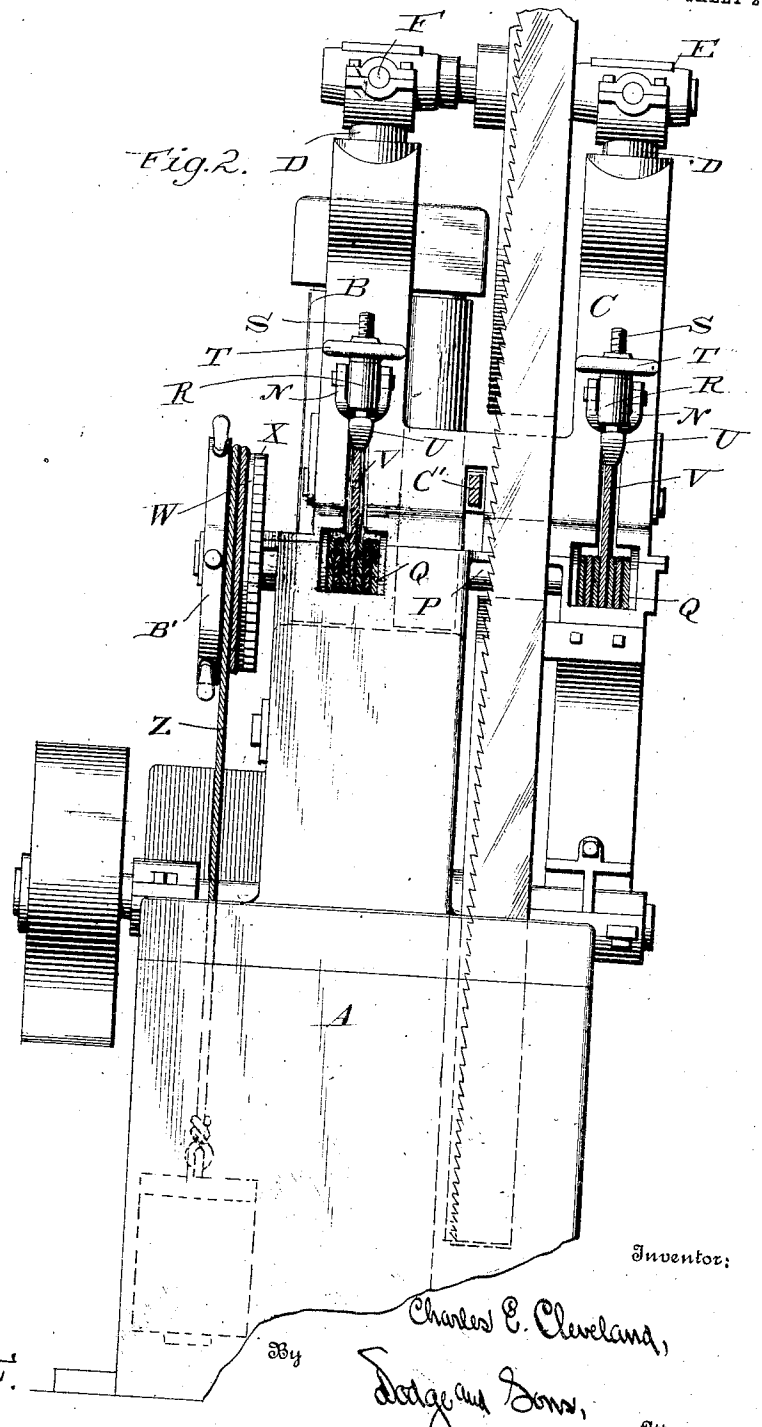
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3 SHEETS—SHEET 2.

Fig. 2.



Witnesses:
E. L. Randel
J. B. Malnati.

Inventor:
Charles E. Cleveland,
By Dodge and Sons,
Attorneys.

C. E. CLEVELAND.

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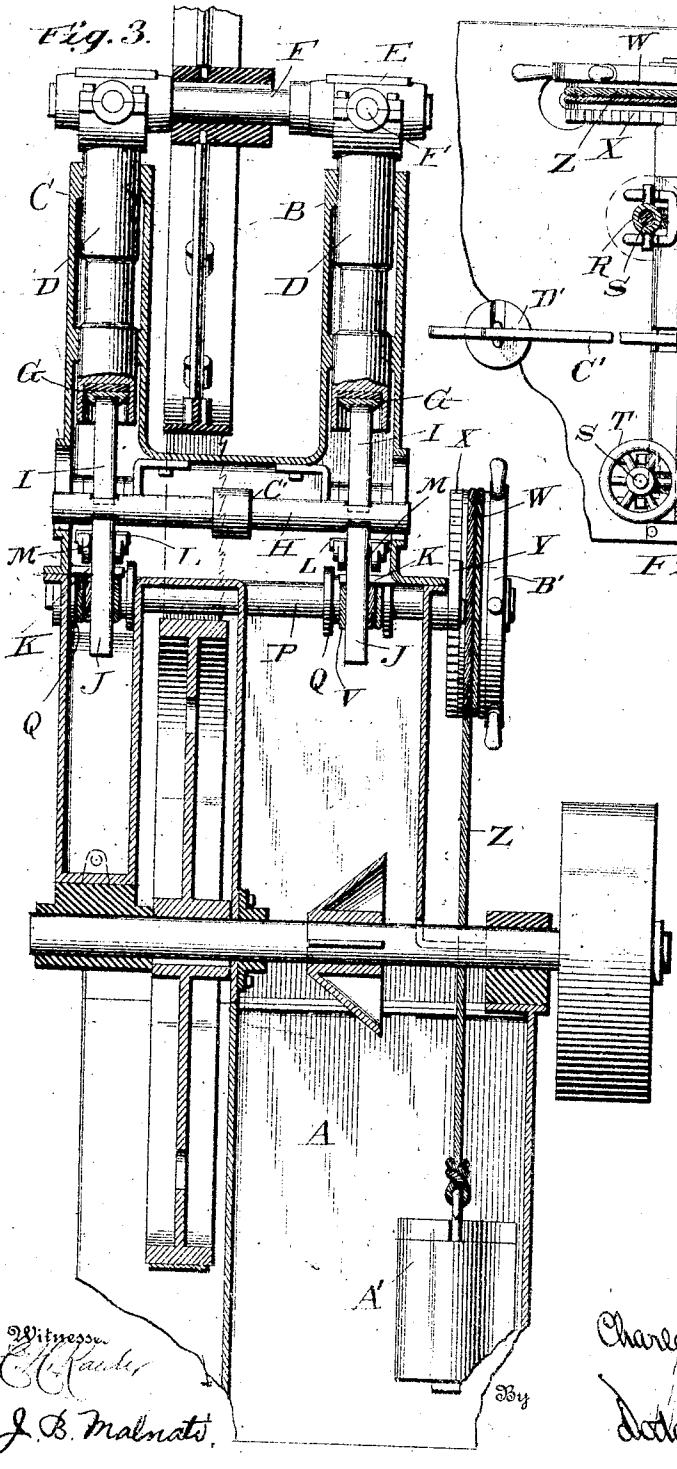
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3 SHEETS—SHEET 3.

Fig. 3.



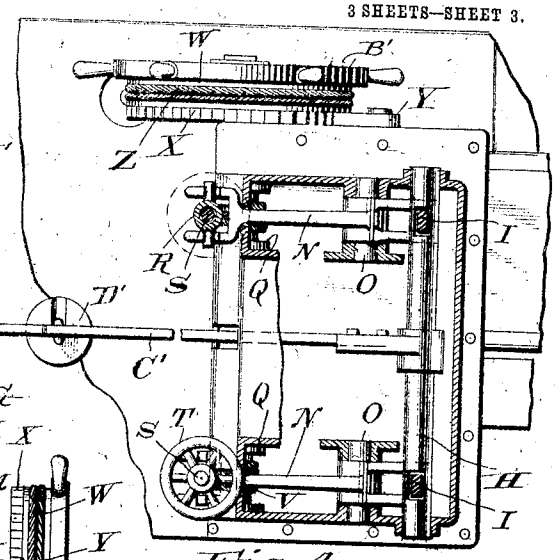


Fig. 4.

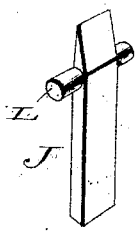


Fig. 5.

Witnesses:

J. B. Malnati.

Inventor:

Charles E. Cleveland,

By Dodge and Sons,

Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES E. CLEVELAND, OF FOND DU LAC, WISCONSIN.

SAW-STRAINING MECHANISM.

No. 919,128. Specification of Letters Patent. Patented April 20, 1909.

Application filed December 27, 1906. Serial No. 349,706.

To all whom it may concern:

Be it known that I, CHARLES E. CLEVELAND, a citizen of the United States, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Saw-Straining Mechanism, of which the following is a specification.

My present invention pertains to improvements in saw-straining mechanism, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein:

Figure 1 is a vertical sectional view of so much of a band saw-mill as is necessary to a proper illustration of my invention; Fig. 2 a rear elevation of the mill, the lever which sustains the straining weight being shown as broken off; Fig. 3 a transverse vertical sectional view on the line 3—3 of Fig. 1; Fig. 4 a horizontal sectional view on the line 4—4 of Fig. 1; Fig. 5 a perspective view of one of the knife-edge sustaining rods; Fig. 6 a perspective view of one of the sustaining levers; and Fig. 7 a like view of the rocker-shaft which coacts with the knife-edge rods to support the vertically-sliding supports or pedestals that carry bearing-boxes for the shaft of the upper band-wheel.

The object of the present application is to provide a simple and efficient saw-straining mechanism which as a whole may be raised or lowered to adjust the wheels toward or from each other for the accommodation of saws of different lengths and in which the strain is applied directly to the saw after the same has been positioned.

Referring to the drawings, A denotes the frame of the mill, provided with two hollow vertical columns B and C, in which are mounted the sliding pedestals D that carry the boxes E for the upper band-wheel shaft F. This is of the ordinary construction. The lower end of each of the pedestals D is cored out or hollowed, and bearing-blocks G are mounted therein.

H denotes a rocker-shaft, provided upon its upper and lower faces with recesses, those in the upper face forming seats or bearings for the knife-edges formed upon the lower ends of the rods I, the upper end of each of said rods being rounded and seated in a recess formed in each of the blocks G. Extending into each of the recesses in the lower face of the rocker-shaft is a knife-edge formed upon the upper end of one of the sustaining rods or members J, best shown in Fig. 5, the lower ends of said rods passing through openings K formed in the frame of the mill, see Fig. 1. Each of said sustaining members is provided with a pair of laterally-extending lugs L which rest in curved seats M formed in the forked ends of levers N, there being two of such levers, see Fig. 4. Said levers are fulcrumed upon shafts O, the rear ends of the levers extending out through openings formed in the rear face of the vertical columns and likewise being forked.

P denotes a shaft, mounted in suitable bearings formed in the frame of the mill, said shaft being provided with a pair of spools Q, standing in line, respectively, with the rear ends of the levers N and at a point somewhat below said levers.

In the outer or rear end of each of the levers N is mounted a swivel-block R through which extends a stem S, the upper portion of which is threaded and upon which is a nut T. To the lower end of the stem S is secured a coupling member U which in turn is connected to the upper end of a cable or rope V, the lower end of each of said cables being connected to the spools Q, which stand immediately below the rear ends of the levers N, as above noted.

To one end of the shaft P is secured a drum W, provided with a ratchet-wheel X. A pawl Y, pivoted to the frame of the mill coacts with said ratchet-wheel and serves to hold the drum and the shaft in their adjusted positions. A cable Z is secured to the drum and a weight A′ is attached to the lower end of said cable, the arrangement being such that the weight, acting through the shaft P and levers N, counterbalances the weight of the upper band-wheel and its allied parts.

In order to effect adjustment of the shaft P and consequently to raise or lower the upper band-wheel shaft, shaft P is provided with a hand-wheel B′ by which said shaft may be rotated to raise or lower the saw-straining mechanism as may be necessary.

Extending outwardly from the rocker-shaft H and rigidly affixed thereto is an arm or lever C′ carrying at its outer end an adjustable weight D′. This weight, acting through the lever, and the rocker-shaft, serves to place the necessary tension upon the saw to keep the same properly strained at all times. It is designed to have this lever

stand in a substantially horizontal plane when the saw is upon the wheels, and this may be done by throwing the pawl Y out of engagement with the ratchet and rotating the shaft P to raise or lower the levers N and consequently raise or lower the pedestals and the upper shaft supported thereby, according as a longer or shorter saw is employed.

It will be noted that the strain upon the saw is applied directly through the rocker-shaft by the weight D′ and the lever C′, and that the weight A′ and the parts upon which it acts, with the pawl, serve merely to counterbalance the mechanism and to render adjustment thereof for longer or shorter saws an easy matter.

By forming the recesses in the rocker-shaft in the manner shown in Figs. 1 and 7, that is to say, having the knife-edges of the upper and lower members out of alinement and the weight D′ acting to draw them into alinement, the parts in effect become a toggle, which is constantly tending to straighten out and thereby exert an upward thrust upon the pedestals D and as a consequence to raise the shaft F and place the saw under tension or strain.

Shaft P and its spools Q may for the sake of convenience in the claims be termed a windlass.

Having thus described my invention, what I claim is:

1. In a band-saw mill, the combination of the upper wheel shaft; vertically movable supports therefor; a rocker-shaft having seats in its upper and lower faces, said seats being out of vertical alinement; rods interposed between the upper seats and the vertical supports; a pair of sustaining members having their upper ends located in the seats in the lower face of the rocker-shaft; a lever for supporting each of said sustaining members; a windlass; cables extending from the outer ends of the levers to the windlass; and a weight serving to rotate the rocker-shaft.

2. In a band-saw mill, the combination of the upper wheel shaft; vertically-movable supports therefor; a rocker-shaft having a plurality of seats formed in its upper and lower faces, said seats being out of alinement; rods interposed between the movable supports and the seats in the upper face of the rocker-shaft, the lower ends of the rods being provided with knife-edge bearings; sustaining members having knife-edges upon their upper ends which take in the seats in the under face of the rocker-shaft; a supporting lever for each of said members; a windlass for rocking said levers to secure initial adjustment of the parts; a counterbalancing weight for the windlass; and a weight acting to rotate the rocker-shaft and to thereby place the saw under tension.

3. In a band-saw mill, the combination of the upper wheel shaft; vertically-movable supports therefor; a rocker-shaft having a plurality of seats formed in its upper and lower faces, the seats standing out of vertical alinement; a pair of sustaining members having knife-edges upon their upper ends which pass into the seats in the under face of the rocker-shaft, the lower ends of said sustaining members passing through openings formed in the frame of the mill; a pair of lugs extending outwardly from each sustaining member; a lever engaging each pair of lugs; a windlass; a cable connecting each lever with the windlass; a counterbalancing weight acting on the windlass; a locking device for the windlass; a lever extending outwardly from the rocker-shaft; and a weight carried by the lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES E. CLEVELAND.

Witnesses:
L. P. Dauterman,
William McDermott.