J. R. HOFFMAN.

BAND-SAW MILL.

No. 192,917. Patented July 10, 1877.

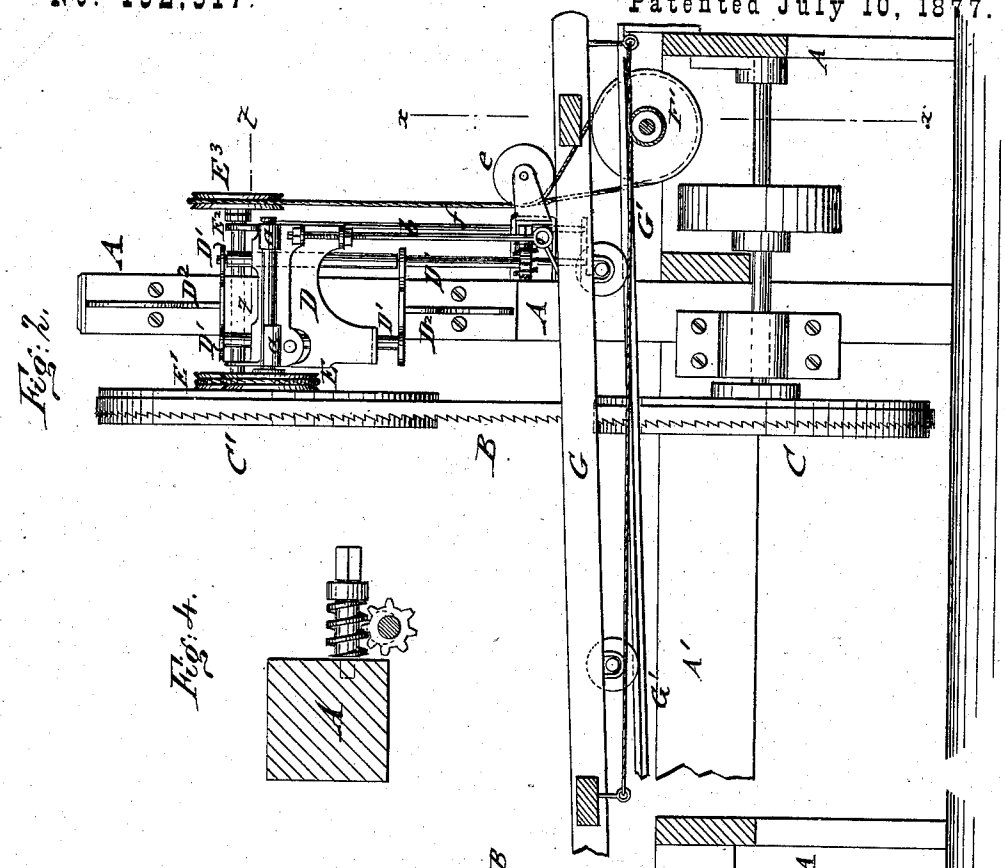


Fig: 2.

Fig: 4.

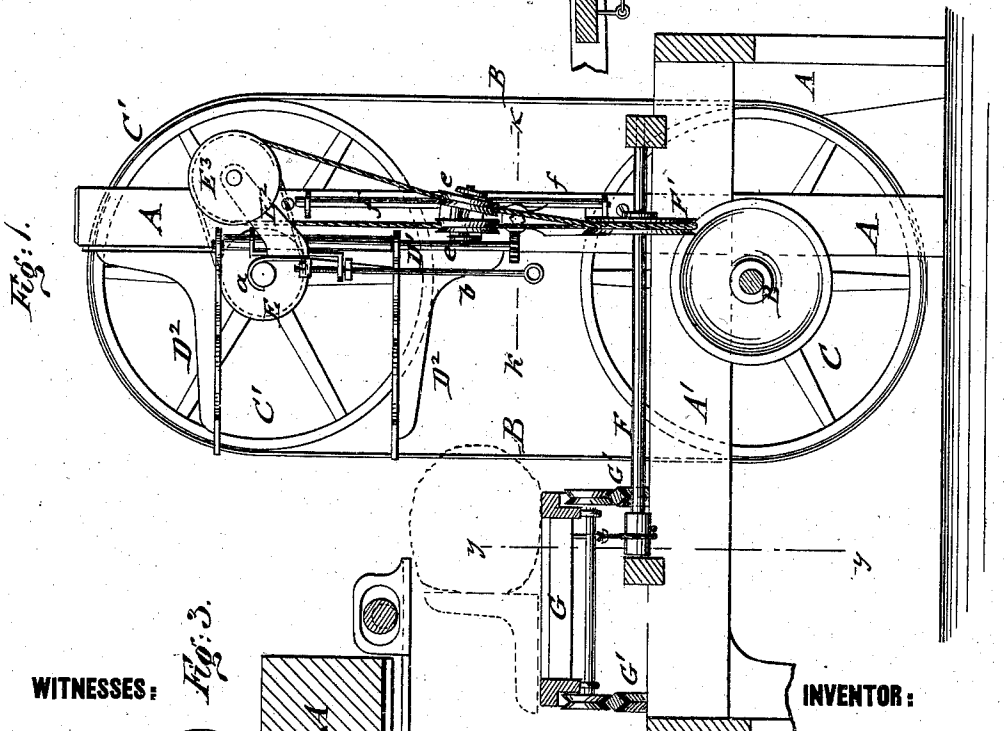


Fig: 1.

Fig: 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JACOB R. HOFFMAN, OF FORT WAYNE, INDIANA.

IMPROVEMENT IN BAND-SAW MILLS.

Specification forming part of Letters Patent No. 192,917, dated July 10, 1877; application filed May 21, 1877.

To all whom it may concern:

Be it known that I, JACOB R. HOFFMAN, of Fort Wayne, county of Allen, and State of Indiana, have invented a new and useful Improvement in Band-Saw Mill, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a side elevation of my improved band-saw mill, partly in section, on line *x x*, Fig. 2. Fig. 2 is an end view in section on line *y y*, Fig. 1, and Figs. 3 and 4 are detail horizontal sections on lines *y y*, Fig. 2, and *k k*, Fig. 1, illustrating the horizontal adjustment of upper band-saw pulley.

Similar letters of reference indicate corresponding parts.

The object of this invention is to improve the construction of band-saw mills, that the strain of the saw is accomplished, in place of applying a greater weight, by employing the upper saw-pulley for the purpose of driving the feed or any other mechanism, giving thereby the saw a higher tension or strain, and rendering the same less liable to "dodge" in going through the log. The friction on the bearings of the upper pulley-shaft is thereby reduced, and either the front or back edge of the saw strained at will for forward or backward motion. The feed-motion is also improved especially with a view to facilitate the "gigging" back of the log-carriage.

The invention consists, essentially, in the combination of the upper saw-pulley, by suitable transmissions, with the feed mechanism of the saw-carriage or other movements, using power so as to strain the saw at the same time. It next consists of the horizontal adjustment of the upper pulley-shaft-supporting frame, so as to strain the front or back edge of the saw; and, finally, of the combination of the feeding mechanism with an inclined way, to facilitate the gigging back.

In the drawings, A represents the supporting main post, and A′ the girders, level with floor. The band-saw B is stretched over a lower driving pulley, C, and an upper straining-pulley, C′, and the strain equalized by a weight-and-lever attachment of the upper shaft-supporting frame D, that provides for the contraction and expansion of the saw. The frame D, which supports the shaft of the upper pulley, is hung to vertical rods D^1 of horizontal brackets D^2. The bearings *a* of the upper pulley-shaft are made adjustable in frame D by means of screw-rod *l*, so as to impart to the shaft an oscillating motion, and throw thereby the saw-pulley out of perpendicular position, which adjustment enables the operator to equalize the strain on all parts of its width. This feature has been fully described in a patent heretofore granted to me under date of December 20, 1870, and No. 110,236.

The upper saw-pulley C′ transmits, by a grooved wheel, E, keyed to the shaft or made in one piece with pulley C′, and belt-motion to a second wheel, E^1, whose shaft is supported on arms E^2 of frame D, which latter is adjusted on the supporting-rods as the length of the saw requires. The shaft of the wheel E^1 is provided at the outer end with a second grooved wheel, E^3, that transmits by a belt, in connection with vertically-adjustable guide-pulleys *e*, motion to the grooved wheel F′ of the feed-shaft F, which moves, by a friction cord and pulley, the log-carriage G forward and back on the inclined way G′.

The guide-pulleys *e* are arranged at a suitable angle of inclination to each other, and the supporting-bearings of the same moved up or down on guide-rods *f*, to suit length of saw. The upper saw-pulley drives thus, by the intermediate transmitting parts, the log-carriage, and gives thereby the saw a higher tension or strain without the employment of additional weights for that purpose, while it also reduces the friction on the bearings instead of increasing it, as would be the case by the addition of weights to the straining-lever.

The transmitting-belt of the wheel next to the saw-pulley pulls in opposite direction to the motion of the saw, and tends thereby to suspend or balance the shaft in its bearings, so as to diminish the friction.

As the log-carriage works on an inclined way, all the power required for moving the log back and forth is expended in feeding up, throwing thereby the strain on the saw when the same is moving through the log, where it is required. The carriage is readily gigged back in the inclined track, while ordinarily it takes greater power to gig back than to feed up.

The vertical supporting-rods D^1 of frame D turn in pivot-holes of the brackets D^2, the pivot ends of the outer rod D^1 being made eccentric to the larger main section of the rod, which is extended below the brackets and provided with a small pinion geared by a worm-wheel or otherwise, so as to allow the ready swinging of the supporting-frame D by the eccentricity of the outer rod D^1 on the inner pivoted rod D^1. The rod D^1 passes through a slot of frame D, as shown in Fig. 3, the adjusting-gear being shown in Fig. 4.

The turning of the gear imparts to the supporting-frame D a throw in horizontal direction, which is an important feature, as it adjusts the upper saw-pulley so that the saw can work forward or back on the wheel at the pleasure of the sawyer, without straining either edge, which latter result is only accomplished by the employment of the device for giving the upper pulley the vertical movement.

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

1. In a band-saw mill, the combination of the upper saw-pulley C with the log or feed carriage G, and mechanism, substantially as described, for operating said carriage from the saw-pulley, for the purpose of straining the saw, as and for the purpose set forth.

2. The combination, in a band-saw mill, of the inclined way G′, log-carriage G, band-saw B, lower pulley C, upper straining saw-pulley C′, and suitable transmitting mechanism for operating the log-carriage from the upper strain-pulley, substantially as and for the purpose set forth.

3. The combination of the outer eccentrically-pivoted rod, D^1, and inner pivot-rod D^1, and suitable operating-gear, with the shaft-supporting frame D, upper saw-pulley C′, for imparting horizontal motion to the latter, for the purpose described.

JACOB R. HOFFMAN.

Witnesses:
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