M. T. WERTENBAKER.

TENSION DEVICE FOR BAND SAWS.

APPLICATION FILED MAY 13, 1911.

1,069,748.

Patented Aug. 12, 1913.

3 SHEETS—SHEET 1.

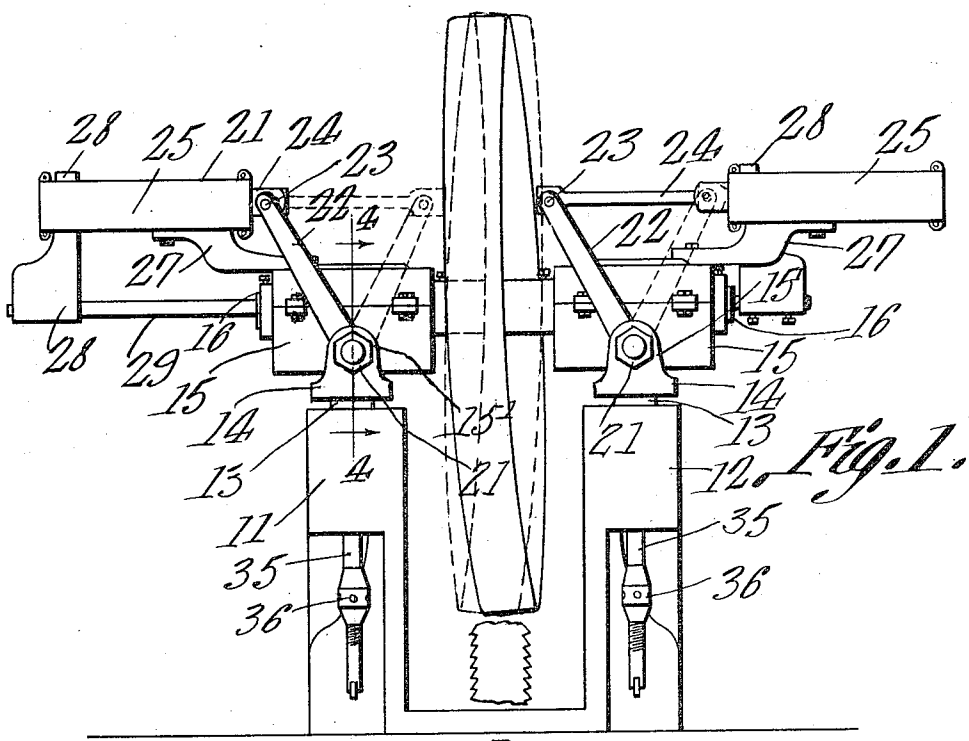


Fig. 1.

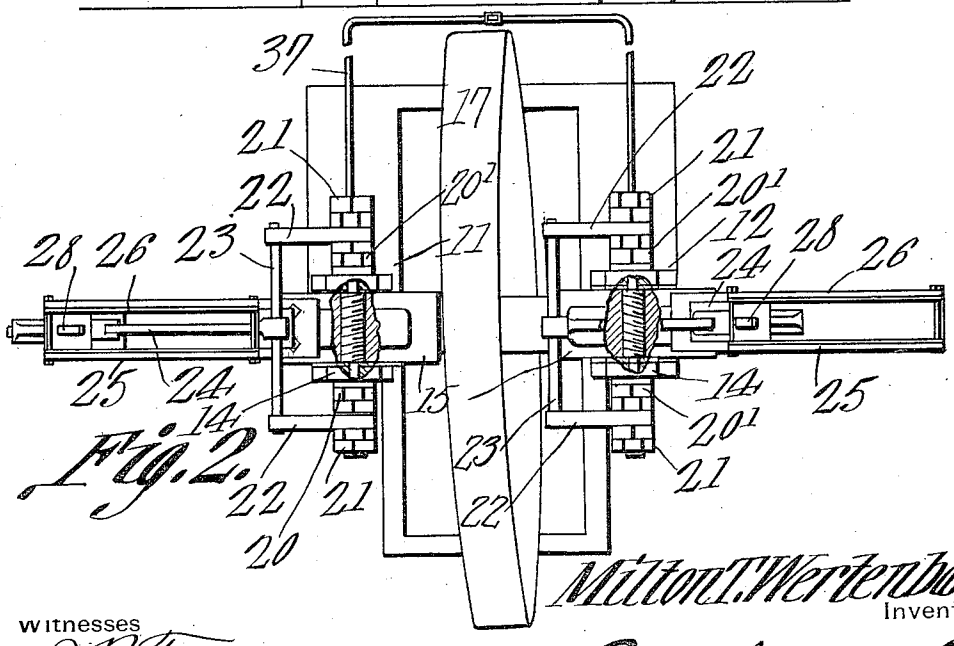


Fig. 2.

Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

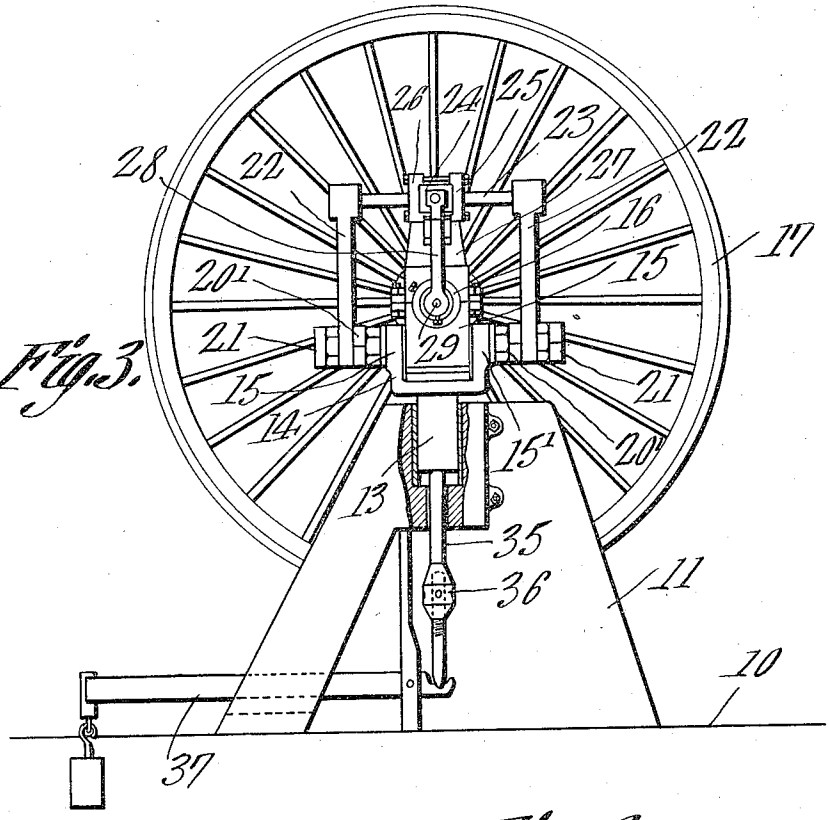


Fig. 4.

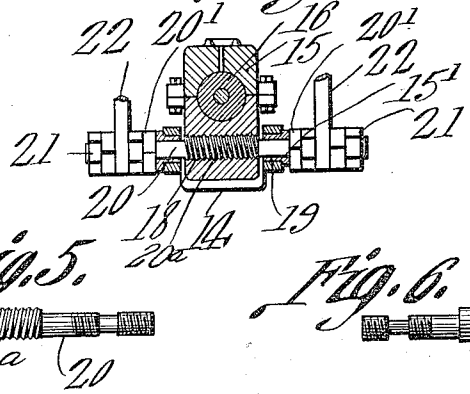


Fig. 5.



Fig. 6.



Fig. 7.



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3 SHEETS—SHEET 3.

Fig. 8.

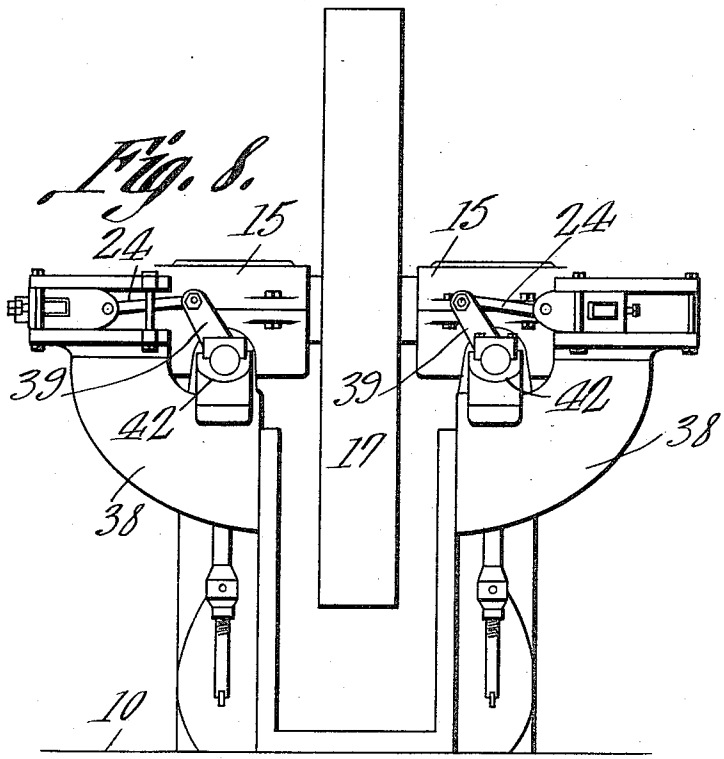
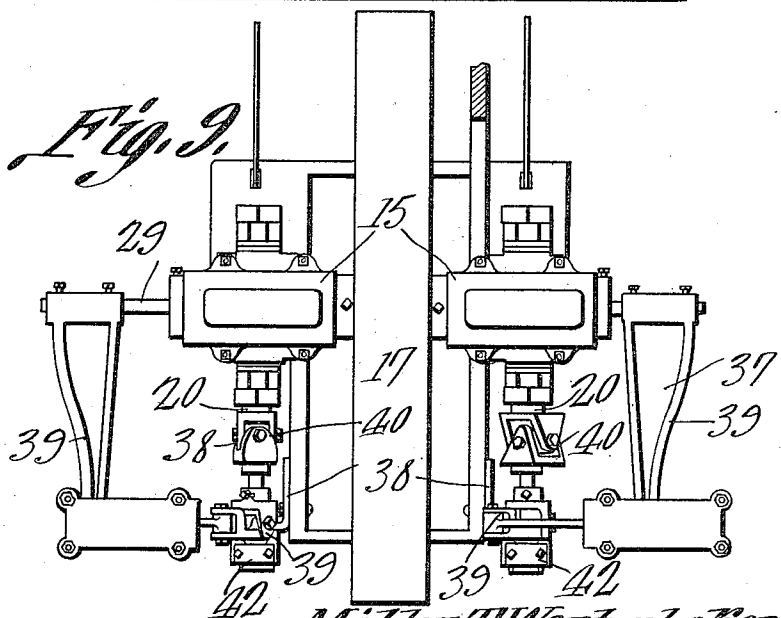


Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

MILTON T. WERTENBAKER, OF PARKERSBURG, WEST VIRGINIA.

TENSION DEVICE FOR BAND-SAWS.

1,069,748. Specification of Letters Patent. Patented Aug. 12, 1913.

Application filed May 13, 1911. Serial No. 627,038.

To all whom it may concern:

Be it known that I, MILTON T. WERTENBAKER, a citizen of the United States, residing at Parkersburg, in the county of Wood and State of West Virginia, have invented a new and useful Tension Device for Band-Saws, of which the following is a specification.

This invention relates to an improved mechanism for placing under tension the cutting edges of a double cut band saw.

The primary object of the invention is to provide means for tightening the cutting edge of the saw to increase its cutting efficiency.

In the drawings:—Figure 1 is a front elevation of the saw support. Fig. 2 is a top plan view. Fig. 3 is a side view. Figs. 4, 5 and 6 are detail views of the mechanism for imparting movement to the shaft bearings. Fig. 7 is a detail view of the eccentric shaft which raises the bearing, the cam surface being shown smooth. Fig. 8 is a front elevation showing a slightly modified form of mechanism for shifting the bearings. Fig. 9 is a top plan view of said modified form.

In the drawings 10 designates the bed plate which is provided with the spaced bearing supports 11 and 12. These supports receive the standards 13 which are either formed integral with or rigidly support a yoke 14. This yoke 14 embraces the lower portion of the sectional bearing 15 which supports the hollow shaft 16 on which the wheel 17 is mounted. The bearing 15 is provided with the transverse bore 18 which registers with apertures 19 formed in the arms 15′ of the yoke. Arranged to extend through said bearing and through the arms 15′ of said yoke is a cam shaft 20 which is held against longitudinal movement by means of the jam nuts 20′. Secured adjacent to the ends of said shaft 20 and held against displacement by the nuts 21 are a plurality of levers 22, which when actuated rotate the shaft 20. These levers extend above the bearings 15 and are connected by a rod 23 which is secured at its center to a plunger 24 said plunger being mounted for reciprocatory movement between guides 25 and 26 which are supported by a bracket 27, said bracket being secured to the bearing 15. Arranged on the outer end of the plunger 24 is an arm 28 which terminates at a point in alinement with the bore of the shaft 16. Arranged to reciprocate within said shaft is a rod 29 which is secured to the arm 28, thus a reciprocatory movement imparted to the arm 28 will swing the levers 22 to rotate the shaft 20, the swinging of said levers 22 causing the reciprocation of the plunger 24 which will in turn impart movement to the rod 29. This rod 29 extends entirely through the sleeve 16 and is connected on the other side of the support to a second arm 28 which is in turn connected to a piston 24, the structure for rotating the shaft 20 and the construction and arrangement of said shaft being duplicated on this side of the support. Thus it will be noted that as the rod 29 is moved to the left as shown in Fig. 1, the shaft which extends through the bearing arranged on the left hand side of the support will turn to the left, the cam surface of said rod contacting with the bearing to raise the same thus tilting the sleeve on which the wheel 17 is mounted. It will be noted that as the levers 22 are swung to rotate the shaft 20 which raises the bearing on the left hand side of the support a corresponding rotation will be imparted to the shaft 20 arranged on the other side of the support, the cams being so arranged that when one of the bearings is raised the other bearing will be lowered.

As before stated the primary object of the invention is to increase the tension of the cutting edges of the saw this being accomplished by shifting the supporting wheel by means of the bearings 15, it being noted that when one bearing is raised and the other is lowered one edge of the wheel will be raised and that when the raising mechanism is shifted by moving the bracket 28 or in any other manner, the other bearing will be raised and the other edge of the supporting wheel raised. In this manner a double edge band saw may have either of its cutting edges placed under tension, thus increasing the efficiency of the saw. In order to add to the tension created by the tilting of the supporting wheel in cases where but one adjustable wheel and one stationary wheel is used, the bearings are given a slight lateral movement, this movement being secured by threading the bore which receives the shaft 20 to receive a screw threaded cam 20^a (Figs. 4 and 5) of

said shaft. Thus as said shaft is rotated by means of the levers 22 the bearings will not only be raised by the action of the cam, but said bearing in addition to being lifted by this cam action will receive a movement which is occasioned by the screw threading of the bore and shaft 20, this movement causing a slight twist of the bearing. As before stated the rotary movement imparted to the shaft 20 on one side of the support is transmitted to the similar shaft which pierces the bearing arranged on the other side. One of these shafts is provided with a right hand thread and the other with a left hand thread. Thus it will be seen that the rotary movement of the shaft will oscillate the bearings, the saw thus being mounted upon a support which is arranged to oscillate, the mounting being such that either of the edges of the supporting wheel may be raised, means being provided for consonantly raising one edge and lowering the other.

The supporting wheel is initially leveled by means of the vertically adjustable rods 35 which contact with the standards 13 which are raised and lowered by means of turn buckles 36 the ends of said rods being supported by the weighted yoke 37, this yoke being forced downward to bring the wheel 17 in contact with the saw.

In the modified form shown in Figs. 8 and 9 the guides for the plunger 24 are supported by a bracket 38 which is secured to an upright, the plunger 24 being connected to the rod 29 by means of an arm 39. In this form of the invention the shaft 20 is connected by means of a knuckle or universal joint 40, to the portion 42 of the bracket 38. It will thus be noted that the threaded portion 20^a of the shaft 20 in conjunction with the means for rotating the same will produce the necessary action or oscillatory movement in the supporting wheel so that either edge of the saw will be placed under a tension and lead the saw in the proper direction.

The skewing of the bearings leads the saw into the material. Attention is called to the fact that the simultaneous lowering of one bearing and raising of the other places one edge of the saw under tension, which is desirable in view of the fact that the same expands while in contact with the material, the same movement which creates tension on the cutting edge of the saw imparting a twist to the bearing which causes said saw to lead into the material.

What is claimed is:—

1. In a mechanism of the class described, a saw supporting wheel, a shaft supporting said wheel, a plurality of independently movable bearings supporting said shaft, said bearings being disposed on opposite sides of said wheel, and means for simultaneously raising one of said bearings, lowering the other and skewing the same to lead the saw into the material.

2. In a mechanism of the character described, a saw supporting wheel, a shaft supporting said wheel, a plurality of independently movable bearings, disposed on opposite sides of said wheel and supporting said shaft and threaded cams for simultaneously raising one of said bearings, lowering the other, and skewing the same in opposite directions.

3. In a mechanism of the class described, a saw supporting wheel, a shaft supporting said wheel, bearings supporting said shaft, a yoke supporting each of said bearings and means supported by said yoke and extending within said bearings for imparting a lateral and a vertical movement to the same, said bearings moving in opposite directions.

4. In a mechanism of the character described, a saw supporting wheel, a hollow shaft supporting said wheel, a plurality of independently movable bearings supporting said shaft, a rod mounted to reciprocate within said shaft, cam means for imparting vertical movement to each of said bearings, said rods transmitting the movement of one cam to the other.

5. In a mechanism of the character described, a saw supporting wheel, a hollow shaft supporting said wheel, a plurality of independently movable bearings supporting said shaft, a rod mounted to reciprocate within said shaft, a supporting bracket arranged adjacent to each of said bearings, a plurality of guides supported by said bracket, a plunger mounted for movement between said guides, an arm connecting said plunger with said rod, a cam shaft passing transversely through each of said bearings and an operative connection between said shaft and said plunger.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MILTON T. WERTENBAKER.

Witnesses:

F. B. OCHSENREITER,

LENA WILLSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."