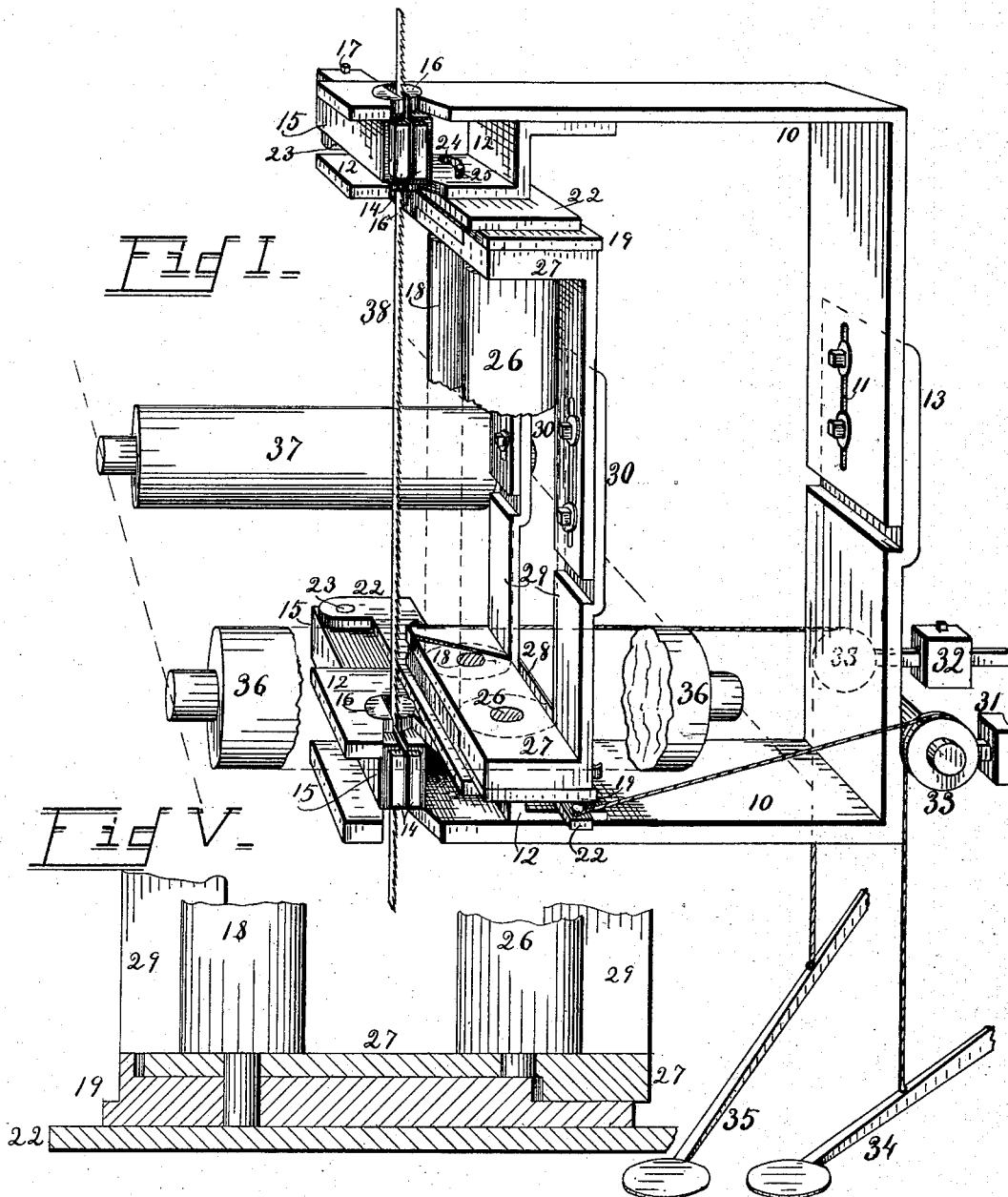


J. W. MAXWELL.

SAW GUIDE.

No. 384,773.

Patented June 19, 1888.



Witnesses.
S. E. E. Stevens.
P. E. Stevens.

Inventor.
Joseph W. Maxwell
By his Attorney W. X. Stevens.

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Fig II—

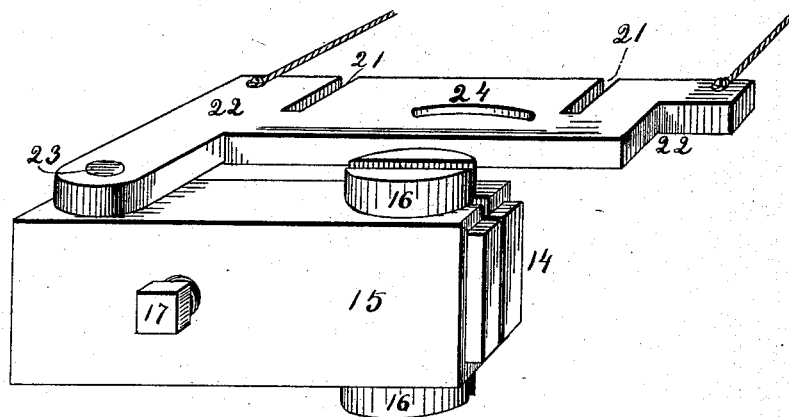


Fig III—

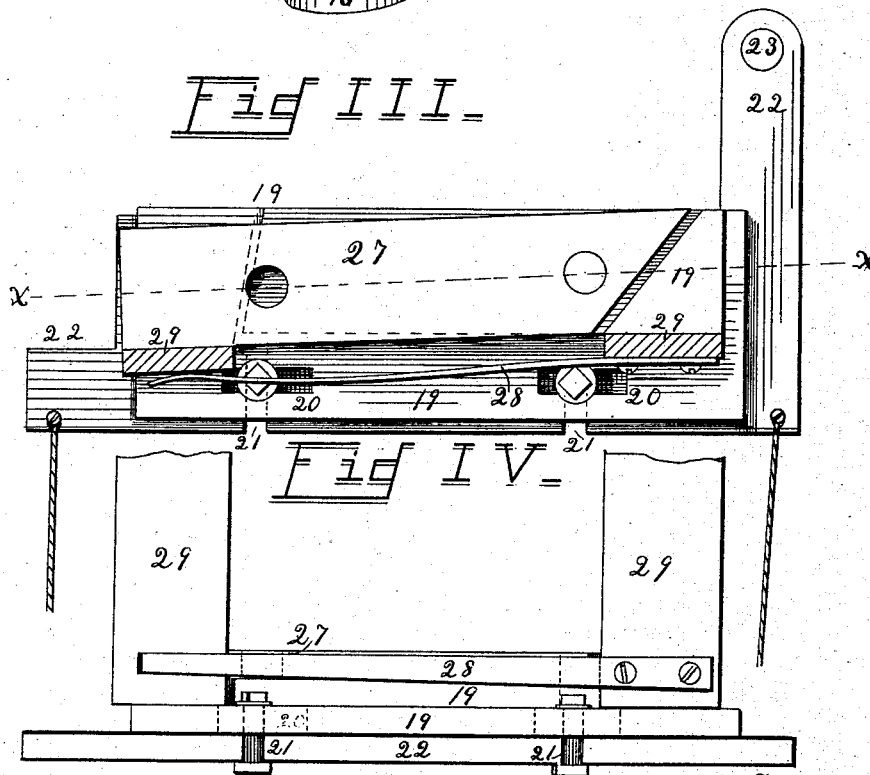


Fig IV—

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UNITED STATES PATENT OFFICE.

JOSEPH W. MAXWELL, OF LOUISVILLE, KENTUCKY.

SAW-GUIDE.

SPECIFICATION forming part of Letters Patent No. 384,773, dated June 19, 1888.

Application filed December 8, 1887. Serial No. 257,345. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. MAXWELL, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Saw-Guides; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of saw-guides which are adapted to guide hoop-poles, so that hoops of even thickness throughout their length may be automatically sawed therefrom, and which are further adapted to guide work to be sawed according to a pattern; and the object of the invention is to provide means whereby one or more guide-rollers following the outline of a hoop-pole or a pattern will act upon the saw-blade in a twisting manner to guide or deflect it from side to side, so that its kerf will be parallel with the guide-pattern or the side of the hoop-pole.

To this end my invention consists, first, in means for giving the guide roller or rollers a concentric motion with the saw-guide and yet leave some slight freedom of motion between the guide and the roller or rollers; second, in means for permitting one of two guide-rollers to yield to accommodate sudden great deviations in the direction of the guiding-pattern; third, in means for adjusting the guide-rollers relatively to the guide to establish the thickness of hoop or other work desired; fourth, in means for giving automatic tension to hold the guide in one general direction; also for suddenly throwing the force of tension either to the right or left; and, fifth, in means for opening and adjusting the yoke to fit the parts carried therein, as hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I is a perspective view of detached portions of a band-saw mill, showing my guide adapted for sawing hoop-poles, portions of three of the guiding-rollers being broken away to show the parts behind them. Fig. II is a perspective view of one saw-guide, its rocking box, and a deflector. Fig. III is a plan view, and Fig. IV is a side elevation, of a yielding roller-support secured upon a deflector. Fig. V is a longitudinal vertical section on the line

$\alpha \alpha$ of Fig. III, showing a portion of each of the two side guide-rollers in elevation.

10 represents two portions of the yoke, one overlapping the other midway the backbone 13, and provided with a slot, 11, and binding-screws therein, whereby the two parts may be joined and adjusted vertically to fit the parts contained in the yoke and then be rigidly fixed together.

12 represents brackets fixed to the yoke by screws as a rigid part thereof when in service.

14 represents the saw-guides, consisting each of a block of wood or other suitable material slotted to permit the saw 38 to run through it and to bear upon the sides of the saw in guiding it. Each guide 14 is fitted to slide in a box, 15, having trunnions 16, journaled at one end in the yoke 10 and at the other end in the bracket 12.

17 represents a binding-screw whereby the guide-block 14 may be fixed in the box 15, so that it may be set to guide the saw to coincide with the axial line of the trunnions, or to pass forward of it or back of it, as may be required.

18 is the gage-roller, journaled in boxes 19, nearly opposite the center of the trunnion 16. Each box 19 is provided with longitudinal slots 20, through which binding-bolts pass into transverse slots 21 in a deflector, 22. This deflector is pivoted at 23 to the box 15, and is provided with a segmental slot, 24, Fig. II, which represents the lower deflector concentric with the trunnions 16 to engage a pin, 25, fixed in the bracket 12; or the slot may be in the bracket 12 and the pin on the deflector 22, as shown in Fig. I.

26 represents the forward guide-roller or pattern-follower, journaled in an arm, 27, which is pivoted to the box 19. (See Fig. V.) This pivot is preferably the journal of the roller 18; but it is not necessarily so, nor necessarily concentric therewith.

28 is a spring acting between the box 19 and the arm 27 to maintain the two in their normal position, as shown, relative to each other.

29 represents two yokes joining the upper and lower deflectors 22 to force them to act in unison as a single frame for the rollers. The yokes 29 are provided with lap-joints 30, having slots and binding-screws, whereby they may be adjusted to other parts and be separated for the introduction of the rollers, &c.

31 and 32 represent weights connected with the two ends of the deflector 22 by means of cords passing over pulleys 33.

34 and 35 represent two treadles connected, respectively, with the weights 31 and 32.

36 and 37 are bed-rollers over which the hoop-pole passes in being sawed.

The operation is as follows: The hoop-pole, being pushed by the operator over the bed-roller 36 and beside the guide-roller 26 and the gage-roller 18, is entered by the saw, by which a hoop is cut from the pole. I prefer to locate the roller 18 beside the edge of the saw by means of the slots 20 in the box 19, and at a distance from the saw equal to the thickness of the required hoop by means of the slots 21, and then bind the box 19 firmly to the deflector 22. When a crook in the pole arrives at the roller 26, the roller is moved thereby to the right or left from its normal position, carrying with it the deflector 22, and that being connected at 23 with the box of the saw-guide deflects the saw in a direction parallel with the guiding side of the hoop, thus assisting the gage-roller in maintaining an even thickness to the hoop. The guide-block 14 is adjustable in the box 15 longitudinally with the saw-path, and may be fixed by the screw 17 at the desired point to give the saw the amount of movement required to follow parallel with the guide and gage rollers. The segmental slot 24 is concentric with the trunnions 16 to maintain the roller 18 at the fixed distance from the saw at all times when the deflector is swung from side to side by crooked poles. If a large knot comes in contact with the roller 26, the spring 28 permits the arm 27 and the roller 26 to yield, so as not to twist the saw more suddenly than it can cut its passage-way. Otherwise the saw is likely to be broken by knots. Before the knot reaches the gage-roller 18 the spring 28, acting through the parts described, will have forced the saw to make its shortest practicable turn into the knot, so that the latter will pass the gage-roller. In some kinds of sawing it is preferable to make the forward roller, 26, the gage-roller, and sometimes the rollers may be set at different distances before or behind the plane of the saw-edge. All these adaptations are provided for by the slots 20. In some cases it becomes necessary to cant the pole forcibly to one side, in which case the operator presses his foot on that treadle, which will raise the opposing weight and permit the proper weight to act with full force to cant the deflector.

In practice it may be found advantageous to make one of the weights, 31 or 32, heavier than the other to give a permanent tension or cant to the deflector, or either weight may be set out upon its supporting-arm for the same purpose. The rollers and their supports may be placed either to the right or left of the saw, and in case they are to follow a fixed form-pattern they may be placed far enough from the saw to admit the pattern between the saw and the rollers, or the pattern may be set to act on the

opposite side of the rollers from the saw. The lap-joints 30 and 11 permit the yoke and the deflectors to be adjusted to the other parts. The gage-rollers and the yielding guide-roller would be serviceable in other combinations than those here shown. One trunnion to the saw-bearing box, either above or below the box and made long enough to preserve the parts in line, would be an equivalent of two bearings on one box; or one trunnion on the upper box mated by another trunnion on the lower box, and the two boxes joined to operate as one, would be another equivalent of the same. These trunnions are only enlarged pivots and may be as large as occasion requires. It is immaterial whether the segmental slot 24 be in the deflector and the pin 25 fixed in the frame or the reverse, and two pins might receive a solid segment between them and produce the same result. The roller-box when fastened to the deflector becomes a part of the deflector in practice. One weight pressing the guide-roller constantly toward the hoop or pattern and one treadle to overcome such a weight would accomplish the purpose aimed at to a limited extent. If each treadle were attached directly to its weight without its attaching-cord passing over a roller, it would aid the weight and produce the same result in a more positive manner, but with greater strain on the parts.

Having thus fully described my invention, what I desire to secure by Letters Patent is the following:

1. The combination, in a saw-guide, of a bearing-block slotted to receive the saw-blade, a box fitted for the said block to slide longitudinally in and hung by means of trunnions journaled in bearings in the machine-frame partially surrounding the saw, means for adjusting the bearing-block longitudinally in the box, the said box constituting an arm extending rearward from its trunnions, and guide-rollers journaled in the deflector-frame connected with the said arm, substantially as shown and described.

2. The combination of a machine-frame, a saw-guide in a box hung upon trunnions therein and provided with an arm extending away from the bearings, a deflector fitted to move in the machine-frame upon a pin engaging a slot which is a segment of a circle concentric with the said trunnions, the said deflector and frame constituting two members of a sliding joint and the said slot being in one member and the said pin fixed to the other member, the deflector being pivoted to the said arm of the bearing-box, and guide-rollers journaled in the deflector parallel with the saw, substantially as shown and described.

3. The combination of a saw-guide journaled in the machine-frame parallel with the line of the saw, a frame hung in the machine-frame to move concentrically with the said saw-guide, a roller or rollers journaled in bearings fitted to the said movable frame, and means for adjusting the said bearings both longitudi-

nally and transversely in the frame, substantially as shown and described.

4. The combination of saw-guides hung in a frame upon journals which are near to and parallel with the line of the saw, and provided with an extending arm, a deflector freely pivoted to the said arm, a guide roller or rollers journaled parallel with the saw in the deflector, and guides communicating between the deflector and the frame, substantially as shown and described, whereby the deflector is guided to move concentrically with the said saw-bearing journals.

5. The combination of a saw-guide journaled parallel with the line of the saw, two guide-rollers journaled in separate supports or boxes and connected with the saw-guides, one of the said boxes being hung to move toward and away from the saw, and a spring fitted to press the movable roller toward the saw, substantially as shown and described.

6. The combination of a journaled saw-guide, a frame hung to move concentrically therewith and connected therewith, a guide-roller journaled in the said frame, another roller journaled in bearings pivotally connected with the said frame, and a spring acting between the said frame and bearings, substantially as shown and described.

7. The combination of a journaled saw-guide, guide-rollers journaled in a deflector connected with the saw-guide, two weights connected with two opposite arms of the deflector, and treadles connected with the weights, substantially as shown and described, whereby the action of either weight may be suspended and the other weight be permitted to act with full force.

8. The combination, with a journaled saw-guide and a roller therefor, of a weight connected with the saw-guide and roller, and a treadle connected with the weight, substantially as shown and described, whereby the action of the weight may be suspended.

9. The combination of a frame, formed in two parts, having an adjustable lapped joint, saw-guides journaled in the same frame, and guide-rollers journaled in a frame concentric with the said saw-guides, the said roller-frame having a lapped joint, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH W. MAXWELL.

Witnesses:

C. B. SEYMOUR,
FINLAY F. BUSH.