No. 640,502. Patented Jan. 2, 1900.

E. E. THOMAS.

YIELDING GUIDE FOR BAND SAW MILLS.

(Application filed July 22, 1899.)

(No Model.) 2 Sheets—Sheet 1.

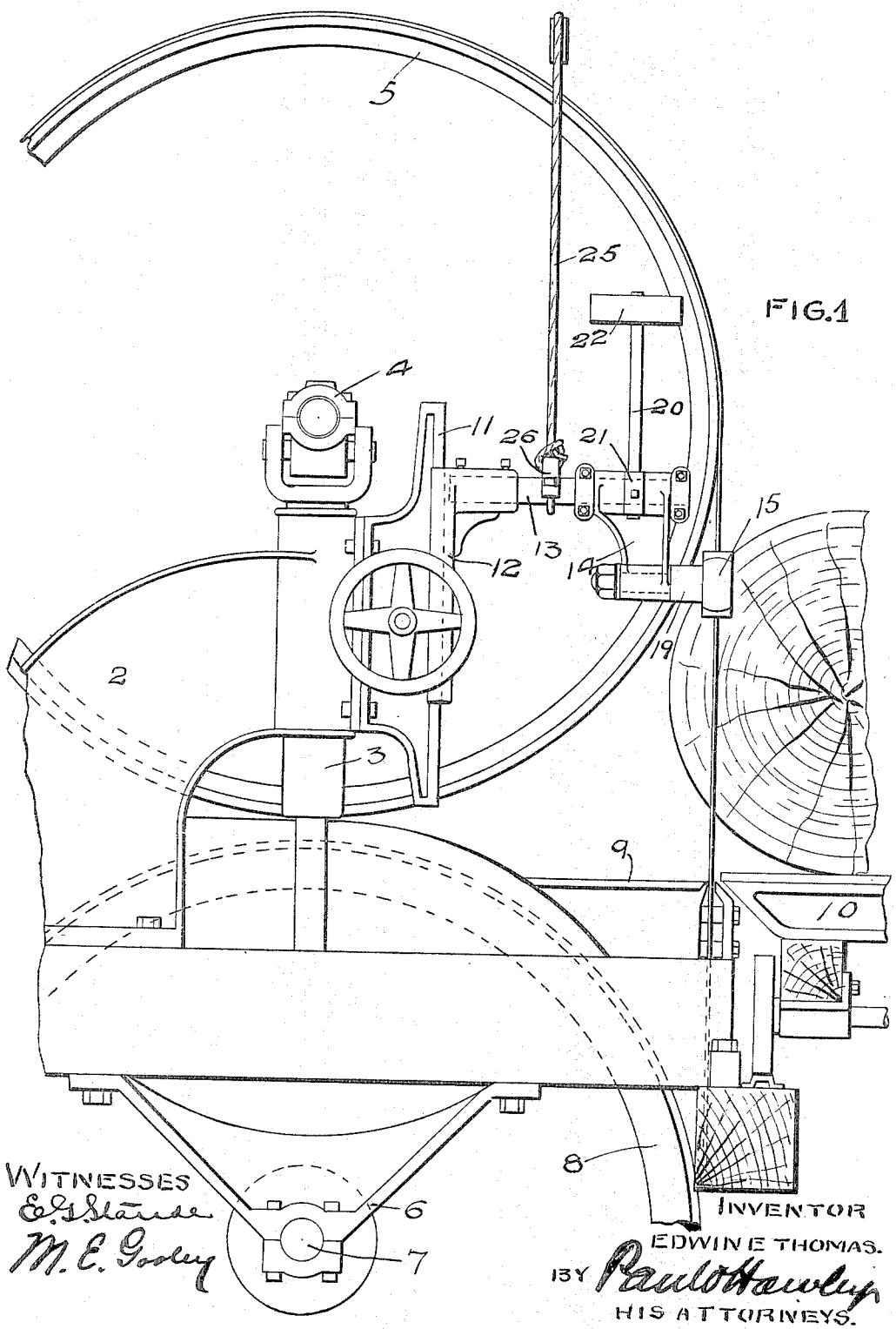


FIG. 1

WITNESSES
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BY Paul Hawley
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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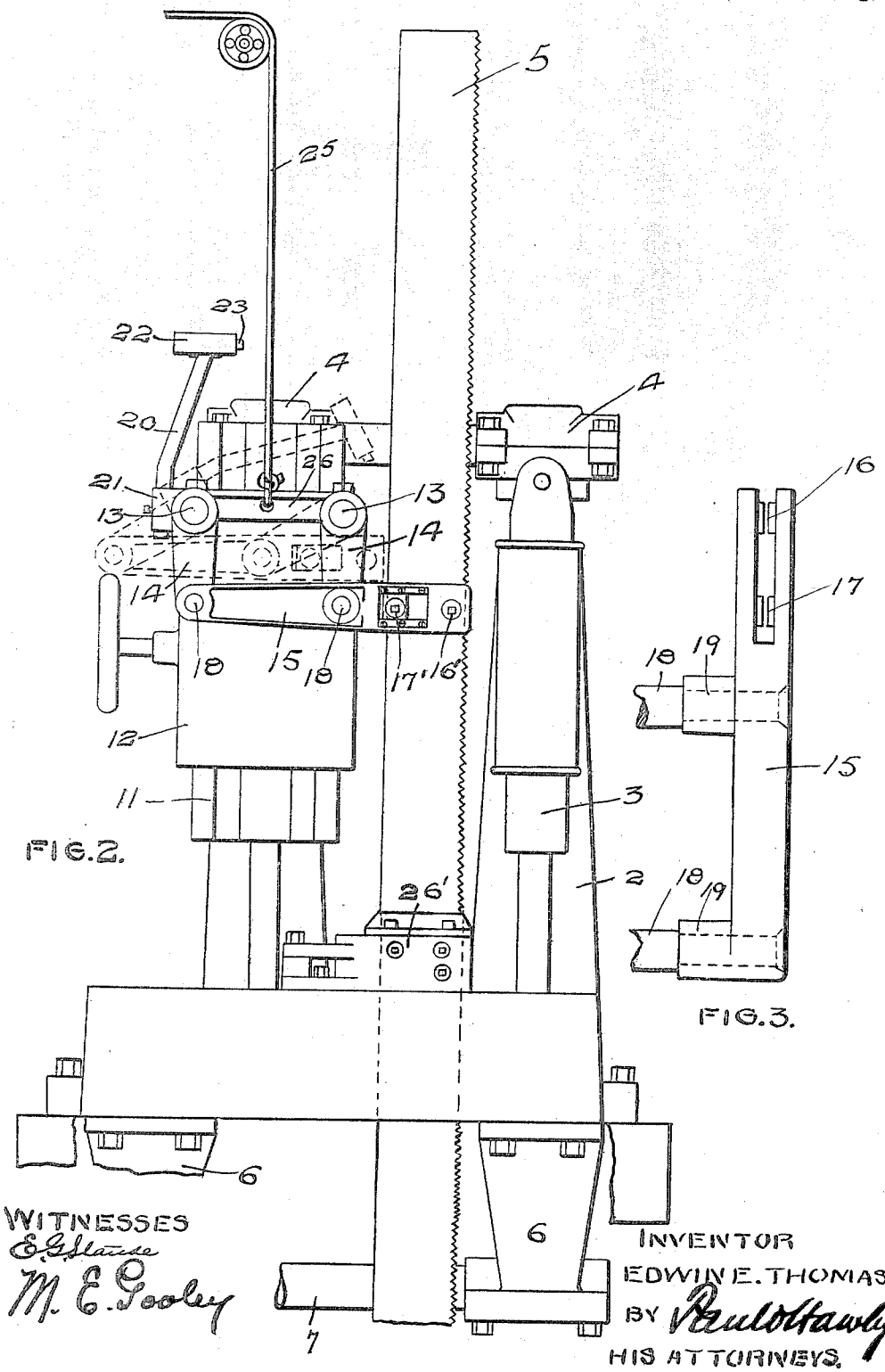


FIG. 2.

FIG. 3.

WITNESSES
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UNITED STATES PATENT OFFICE.

EDWIN E. THOMAS, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO THE UNION IRON WORKS, OF SAME PLACE.

YIELDING GUIDE FOR BAND-SAW MILLS.

SPECIFICATION forming part of Letters Patent No. 640,502, dated January 2, 1900.

Application filed July 22, 1899. Serial No. 724,730. (No model.)

To all whom it may concern:

Be it known that I, EDWIN E. THOMAS, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented a certain new and Improved Yielding Guide for Band-Saw Mills, of which the following is a specification.

This invention relates to band-saw mills, and particularly for the upper guides therefor; and the object of my invention is to provide an upper guide for a band-saw mill, which guide will not only be vertically adjustable, but will be adapted to yield, so that it may be thrown back quickly without regard to the position of the adjustable arm and so that the guide will retire or yield if it chances to be struck by a log upon the carriage. It quite often occurs that the sawyer fails to properly adjust the upper guide, which, being struck by the carriage or the log thereon, is broken, sometimes causing damage to the saw and other parts of the mill and endangering life. Sometimes, also, the guide when adjusted at its extreme height is still in position to be struck by a very large log, and my object is to provide against accidents from this cause, as well as to provide for the quick retirement of the guide by the hand of the operator.

A particular object of my invention is to provide an upper guide for band-saws, which guide will be pivotally supported and balanced in such a manner as to freely yield when struck by a log or in the hands of the sawyer or other operator and which may be readily replaced.

The invention consists generally in the combination, with the adjustable arm, of a band-saw mill, of a guide swung therefrom, preferably by a parallel movement, whereby the guide may be swung upwardly or will itself yield and swing above a log when struck thereby as the log advances toward the saw, and which may also be quickly swung back into place.

The invention also consists in details of construction and in combinations of parts, all as hereinafter described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming part of the specification, in which—

Figure 1 is a partial end elevation of a band-saw mill embodying my invention. Fig. 2 is a side view thereof. Fig. 3 is an enlarged plan view of the guide.

As shown in the drawings, 2 represents the frame of the machine, having the columns 3 for the shaft 4 of the upper band-wheel 5 and also having a hanger 6 for the shaft 7 of the lower band driving-wheel 8.

9 represents the saw-table, and 10 the movable carriage, upon which a log is shown. (See Fig. 1.) On one of the columns is a vertical guide 11 for the vertically-adjustable arm 12, which arm is usually raised and lowered by automatic machinery, but is here shown to be provided with a common hand-wheel, by which the sawyer or the man who tends the rolls may adjust the height of the upper saw-guide. The adjustable arm comprises the slidable portion on the guide 11, from which two shafts or bars 13 extend outwardly nearly to the rim of the upper wheel. On the end of each shaft is a depending arm or link 14, and these links swing very freely thereon and are held by suitable collars, as shown in Fig. 1.

The saw-guide comprises the bar 15, the end of which is bifurcated, as shown in Fig. 3, and is provided with both fixed and adjustable wearing-blocks 16 and 17, between which the band-saw is held when the guide is in its normal position, as shown in Fig. 2. These blocks are placed in the hollow nuts 16′ 17′, and the blocks 17 are capable of longitudinal adjustment in the bar 15—that is, transversely of the saw-blade—and by means of the adjustable blocks the guide may be made to accommodate saws of different widths. The bar 15 is swung from the lower ends of the parallel links 14 by means of the short shafts or studs 18, and said bar is preferably provided with bosses 19 upon its inner side, by which the bar is offset from the links. (See Figs. 1 and 3.) In order to hold the guide-bar 15 forward in the Fig. 2 position, it is necessary to provide a counterbalance for the extended end of the bar 15, and for this purpose I prefer to employ the rod 20, extending from the rear side of the rear link 14, which link is provided with the boss or sleeve 21 on its side for the purpose. The rod 20 is provided with a weight 22 of the right size to

exactly counterbalance the guide-bar 15, so that except for friction in the shaft-bearings said bar may at any moment be freely swung into any of its positions parallel with the line drawn between the centers of the two shafts 13. As the bar is swung back it will obviously rise also, and the counterbalance-weight 22 will be thrown forward and will descend until the bar 20 strikes the forward shaft 13. To prevent injury to the parts, I prefer to arrange a rubber cushion 23 upon the end of the counterbalance 22.

The weight of the adjustable arm of the mill is preferably counterbalanced, and 25 represents the counterbalance rope or cable, which drops from an overhung pulley and the cross-bar 26, that is fastened between the shafts 13 of the adjustable arm. The lower guide 26 may be of any desired construction.

The sawyer or other attendant stands back of the mill, and if it is necessary to raise the upper guide more quickly than can be done by means of the hand-wheel or other mechanism the sawyer may, by grasping the bar 15 or the link 14, draw back the upper guide and in doing so raise the same until it is in the same plane with the shafts 13 of the adjustable arm. While the parts are heavy and the bearings are large, the guide-arm is so well balanced that this movement of the guide by hand is very easy, said guide remaining at any position in which it is placed or being easily restored. In case the guide is not removed from the path of the log on the carriage or from the path of the blocks on the carriage the same will be struck and necessarily thrown back and up out of the way without injury to either the saw or the guide. For this reason larger logs may be handled upon a mill provided with a yielding guide, for with the same the saw may be properly started into a large log, and after being started and after the guide has retired the saw will complete the cut.

Obviously my invention admits of various modifications which will readily suggest themselves to one skilled in the art, and I therefore do not confine my invention to the details of construction herein shown and described.

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

1. A vertically and horizontally freely swinging or yielding upper guide for and in combination with band-saw mills.

2. In combination with a band-saw mill, a freely-swinging upper saw-guide adapted for retirement from the saw and to rise as it retires, said guide adapted and free for quick movement by hand or when struck, substantially as described.

3. In combination with a band-saw mill, an upper saw-guide comprising a bar having the guide proper and parallel swinging links or arms whereby said bar is supported upon the frame of the mill, and permitting said bar to retire and rise from the saw, substantially as described.

4. In combination with a band-saw mill, an upper saw-guide comprising a bar having the guide proper, and freely-swinging parallel links whereby said bar is supported upon the frame of the mill, and permitting said bar to retire and rise from the saw, and a suitable counterbalance for said bar causing same to remain where placed, substantially as described.

5. In combination, with a band-saw mill having a vertically-adjustable upper guide-arm, the parallel links mounted upon said arm, the horizontally-arranged guide-bar attached to the lower ends of said links and provided with the saw-guide proper, and a counterbalance-bar connected with said links, whereby said guide-bar is adapted to retire and rise from the saw or to be returned thereto and to remain as adjusted, substantially as described.

6. In combination with a band-saw mill and carriage, a vertically-adjustable freely-swinging upper saw-guide adapted to retire and rise when struck by a log upon the carriage, and also adapted to be moved freely in either direction by hand, substantially as described.

7. In combination with a band-saw mill, a gravity-balanced freely-swinging upper guide for the saw, and mechanism for adjusting the same vertically, substantially as described.

8. The combination, with a band-saw-mill frame and the wheels thereof to carry the saw, of the vertically-adjustable guide-arms, the shafts extending therefrom, the links depending from said shafts, the guide-bar supported by said links and joining the lower ends thereof, said bar provided with a saw-guide, and the counterbalance rod and weight attached to one of said links, substantially as described.

9. The combination, in a band-saw mill, of the mill proper, with the upper saw-guide, a parallel movement hanger for said guide permitting the same to retire from the saw and rise, and the wearing-blocks in said guide and adjustable transversely of the saw, as and for the purpose specified.

10. In combination, the band-saw mill, provided with a vertically-adjustable guide-arm, and a saw-guide having parallel swinging supports upon said arm, and adapted to swing away from the saw in the plane thereof, substantially as described.

11. In combination, the band-saw mill, with an adjustable upper guide having a parallel link-movement support and balanced to remain in any of its positions automatically, substantially as described.

In witness whereof I have hereunto set my hand this 18th day of July, 1899.

EDWIN E. THOMAS.

In presence of—
C. G. HAWLEY,
M. E. GOOLEY.