No. 676,709. Patented June 18, 1901.

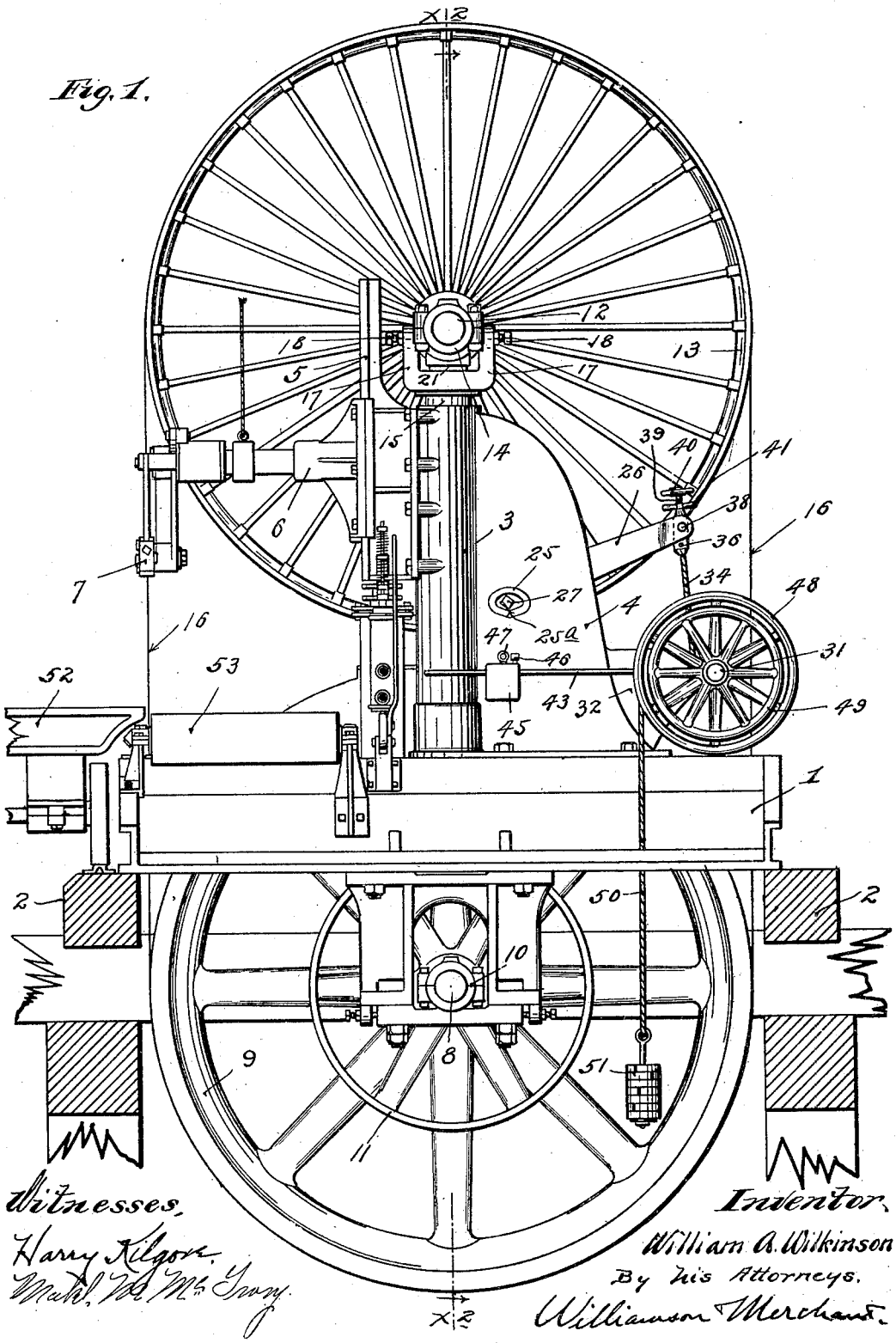
W. A. WILKINSON.

SAW STRAINING DEVICE FOR BAND SAW MILLS.

(Application filed Nov. 16, 1900.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.



Witnesses,
Harry Kilgore.
Mahl. W. McIvoy.

Inventor,
William A. Wilkinson
By his Attorneys.
Williamson & Merchant.

No. 676,709. Patented June 18, 1901.

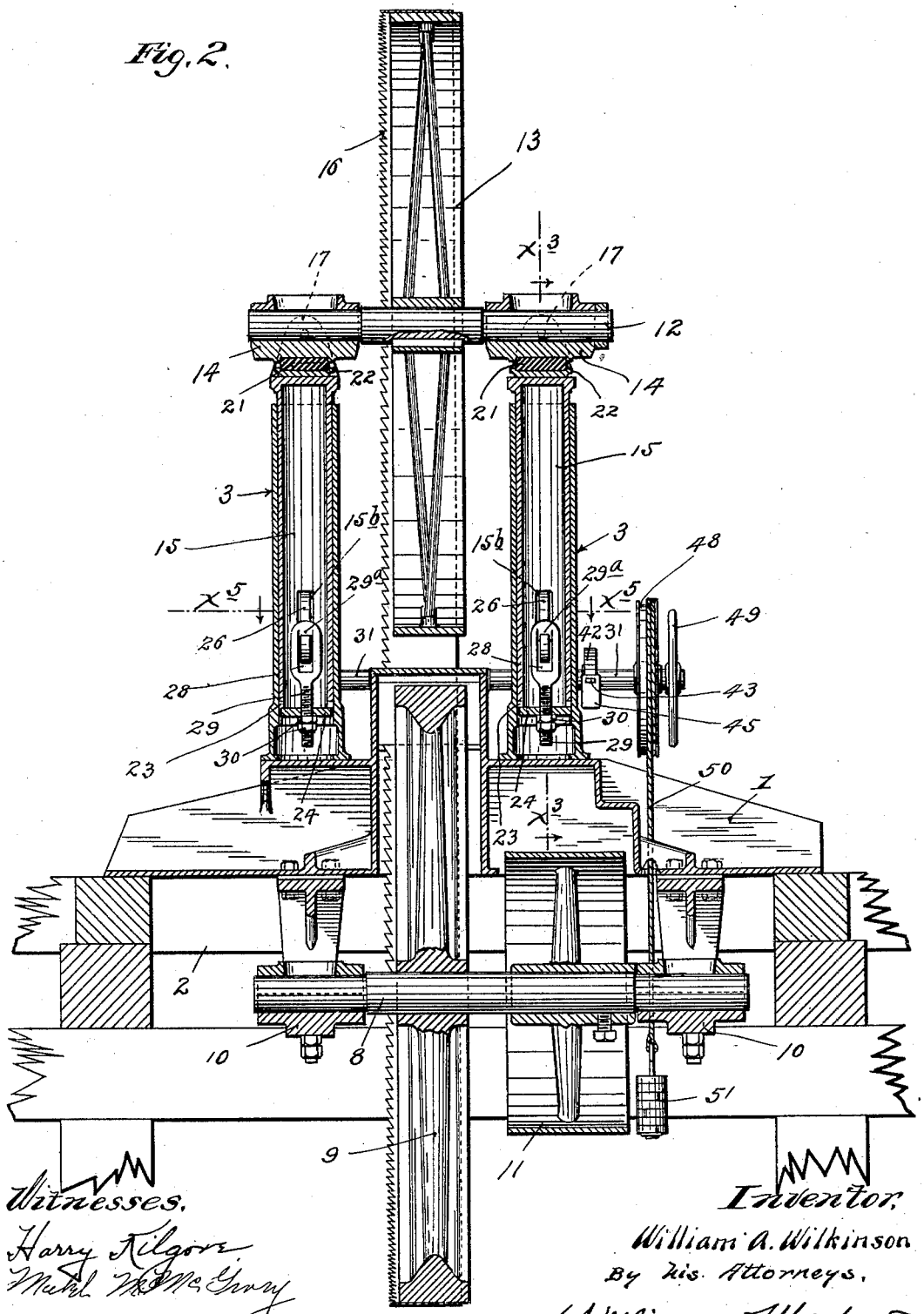
W. A. WILKINSON.

SAW STRAINING DEVICE FOR BAND SAW MILLS.

(Application filed Nov. 16, 1900.)

(No Model.) 4 Sheets—Sheet 2.

Fig. 2.



Witnesses,
Harry Kilgore
Michl. McGinty

Inventor,
William A. Wilkinson
By his Attorneys,
Williamson & Merchant

No. 676,709. Patented June 18, 1901.

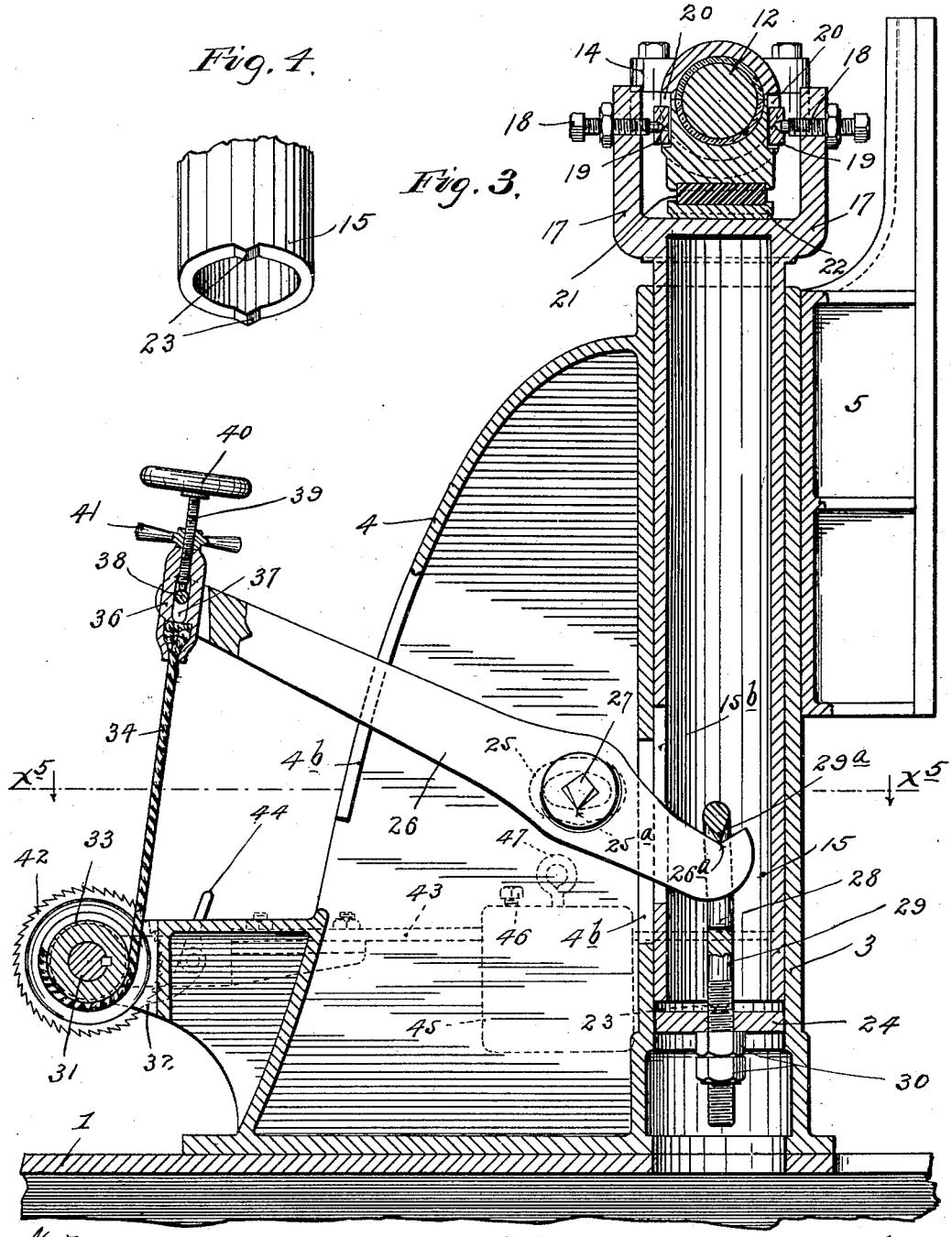
W. A. WILKINSON.

SAW STRAINING DEVICE FOR BAND SAW MILLS.

(No Model.) (Application filed Nov. 16, 1900.) 4 Sheets—Sheet 3.

Fig. 4.

Fig. 3.



Witnesses.

Harry Kilgore.

Madd M. Mc Gray

Inventor.

William A. Wilkinson

By his Attorneys.

Williamson & Merchant

No. 676,709. Patented June 18, 1901.

W. A. WILKINSON.

SAW STRAINING DEVICE FOR BAND SAW MILLS

(Application filed Nov. 16, 1900.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 5.

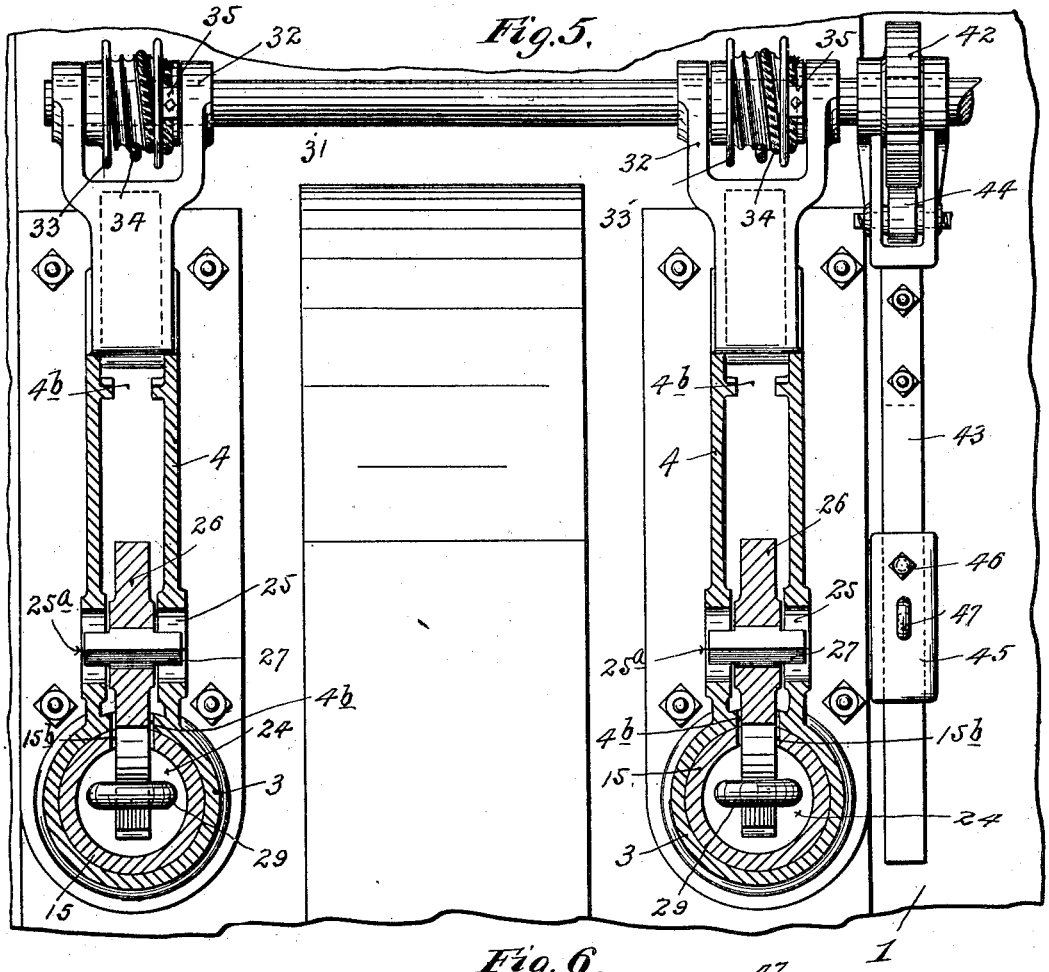


Fig. 6.

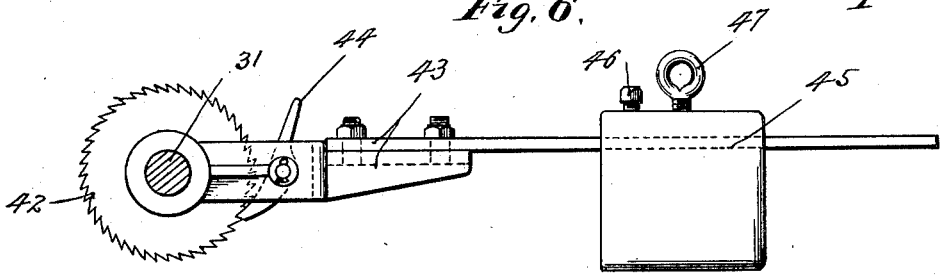
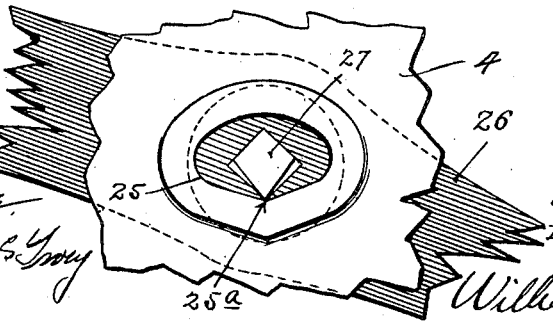


Fig. 7.



Witnesses.
Harry Kilgore.
Mahl. M. McGrory

Inventor.
William A. Wilkinson
By his Attorneys.
Williamson & Merchant

UNITED STATES PATENT OFFICE.

WILLIAM A. WILKINSON, OF MINNEAPOLIS, MINNESOTA.

SAW-STRAINING DEVICE FOR BAND-SAW MILLS.

SPECIFICATION forming part of Letters Patent No. 676,709, dated June 18, 1901.

Application filed November 16, 1900. Serial No. 36,654. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. WILKINSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Saw-Straining Devices for Band-Saw Mills; 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.

My present invention relates to band-saw mills, and has for its object to provide an improved saw-straining device therefor.

To the above end the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in side elevation, showing a band-saw mill, such as used for sawing logs, equipped with my improved saw straining or tightening device. Fig. 2 is a transverse vertical section on the line $x^2 x^2$ of Fig. 1. Fig. 3 is an enlarged view, in vertical section, on the line $x^3 x^3$ of Fig. 2. Fig. 4 is a detail in perspective, showing the lower end of one of the column-sleeves. Fig. 5 is a horizontal section on the line $x^5 x^5$ of Figs. 2 and 3, some parts being broken away. Fig. 6 is a detail in side elevation, showing the weighted saw-straining arm and its pawl-and-ratchet device; and Fig. 7 is a detail on an enlarged scale, showing the fulcrum connection between the supporting-bracket and one of the so-called "scale-beams" or "lifting-levers."

The following parts of the sawmill, which are of ordinary construction, will be but briefly noted.

The bed-casting 1 of the mill, which, as shown, is supported by timber-work 2, is provided with a pair of laterally-spaced tubular columns 3, having vertical webs 4. One of said columns has also a vertical guide 5, on which guide the shoe 6 of the saw-guide 7 is mounted to move in the ordinary way. The shaft 8 of the lower saw-wheel 9 is journaled in bearings 10, depending from the base 1, and is driven in the ordinary way from a belt, (not shown,) which runs over a pulley 11 on the said shaft 8. The shaft 12 of the upper saw-wheel 13 is journaled in bearings 14, connected, as presently described, to the upper ends of column-sleeves 15, which work telescopically one within each tubular column 3.

16 indicates the band-saw.

The connection between the bearing-boxes 14 and the upper ends of the column-sleeves 15 is a novel construction. The upper ends of the said column-sleeves are formed with prongs or laterally-spaced ears 17, through which pointed set-screws 18 work in engagement with small blocks 19, which blocks in turn work within vertically-elongated slots 20, formed in the said bearing-boxes 14. This permits the box 14 a slight vertical movement with respect to the column-sleeve 15, for a purpose to be hereinafter stated. A yielding section, as shown in the form of a rubber block 21, is placed between each bearing-box 14 and the upper end of the corresponding column-sleeve 15. As shown, a washer 22 is placed between the yielding block 21 and the upper end of the sleeve 15. At the lower inner ends each column-sleeve 15 is provided with a pair of sharp-edged fulcrum-lugs 23, which rest directly upon a coöperating supporting disk or washer 24, which is positioned within the lower end of the corresponding column 3 and is supported as immediately described.

In accordance with my invention the webs 4 of the columns 3 are arranged to form a narrow housing having parallel side walls in which are formed fulcrum-seats 25, the lower surfaces of which are inclined and run to apexes 25^a. For each column-sleeve 15 is a so-called "scale-beam" or "supporting-lever" 26, provided with laterally-projecting and sharp-edged fulcrum-studs 27, the supporting edges of which engage the apexes 25^a of the coöperating fulcrum-seats 25. At their inner ends the beams 26 work through perforations 28 in the heads of lifting-bolts 29, the lower ends of which bolts are screw-threaded, are passed through central perforations in the corresponding supporting-disks 24, and are provided below said disks each with one or more nuts 30, as best shown in Figs. 2 and 3. The perforated upper ends of the bolts 29 are pro-

vided with knife-edge bearing-sections 29^a, which engage with suitable seats 26^a of beams 26. By reference to Fig. 3 it will be noted that the beams work through suitable slots 15^b and 4^b of the sleeve 15 and housing 4, respectively.

A windlass-shaft 31 is journaled in bearings 32, which bearings, as shown, are formed as extensions of the flanges or housings 4. The bearings 32 are pronged, and between each pair of prongs the windlass-shaft 31 is provided with sheaves 33, to which the lower ends of wire ropes 34 are secured, as shown, by clamps 35. (See Fig. 5.) The upper ends of the ropes 34 are secured to the lower ends of the heads 36, that are slotted at 37, and are secured between the pronged free ends of the beams or levers 26 by means of pins or bolts 38, passed through said slot and the prongs of said levers. Adjusting-bolts 39, which, as shown, have hand-wheels 40, work with screw-threaded engagement through the upper ends of the heads 36 and press upon the pins or bolts 38. Lock-nuts 41 on the adjusting-rods 39 serve to secure the said bolts in whatever adjustment they may be set.

At one end the windlass-shaft 31 is provided with a ratchet-wheel 42. The saw-straining lever or arm 43, which is pronged at its inner end, embraces the ratchet-wheel 42 and is loosely pivoted on the windlass-shaft 31, and between its prongs it is provided with a pivoted pawl 44, which coöperates with the ratchet-wheel 42. At its free end the arm or lever 43 is provided with adjustable weight 45, which, as shown, is adapted to be held where set by a set-screw 46. Also, as shown, the weight 45 is provided with an eye 47, to which a rope (not shown) may be attached. Such a rope, if employed, would run over a suitable overhead support and be used to suspend the weight 45 when the lever 43 is thrown out of action. However, when the pawl 44 is released from the ratchet-wheel 42 the lever 43 may be lowered, so as to permit the weight 45 to rest upon the floor. The windlass-shaft 31 is also provided at one end (as shown at that end to which the ratchet-wheel 42 is applied) with a windlass 48 and with a hand-wheel 49. A rope 50, provided at its lower end with a counterweight 51, is wound upon and secured at its upper end to the sheave 48. The counterpoise 51 has such weight that it will counterbalance the weight of the upper saw-wheel 13 and parts connected for movement therewith when the arm or lever 43 and weight 45 are rendered ineffective on the windlass-shaft 31 by the release of the pawl 44 from the ratchet-wheel 42. Hence it will be understood that when the said arm 43 and weight 45 are thrown out of action the upper saw-wheel 13 may be easily raised and lowered by the operator taking hold of the hand-wheel 49 and that the said saw-wheel will remain wherever set unless acted upon by some other force than gravity.

In Fig. 1, 52 indicates a portion of a log-carriage, and 53 one of the table-rollers, which parts coöperate with the sawmill above described in the ordinary manner well understood. When the parts are adjusted as shown in the drawings, the saw is put under strain or tension from the weight 45 acting through the arm 43 and other connections to the vertically-movable column-sleeves 15, including the windlasses and the beams 26, all of which have been clearly described. The strain may of course be varied by adjusting the weights 45 on the arms 43, so as to increase or decrease the leverage through which it acts.

The adjustment of the screw-rods 39 at the free ends of the levers or beams 26 affords means for truing up the upper saw-wheel 13 and for setting the same for proper engagement with the inner face of the saw.

When the saw is thrown suddenly into engagement with a log or comes suddenly into contact with a knot or extremely hard place in the same, the momentum of the saw has a tendency to throw more or less of a kink in the saw just above the log. The weighted devices will of course take this kink out of the saw; but for practical purposes they would usually be too slow in their action. The elastic block or spring devices 21, placed, as they are, directly between the upper ends of the column-sleeves 15 and the relatively movable bearing-boxes 14, will, however, act instantaneously either to keep the saw from kinking or to take the kink out of the saw.

It will of course be understood that the devices illustrated in the drawings are capable of many modifications within the scope of my invention.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a band-saw mill, the combination with movable supports for one of the saw-wheels, of a pair of levers acting thereon, a windlass with flexible connections to said levers, a ratchet-wheel connected with said windlass, and a weighted saw-straining lever provided with a pawl or part engageable and disengageable with said ratchet-wheel, for rendering the said weighted lever active and inactive, at will, on said ratchet-wheel, substantially as described.

2. In a band-saw mill, the combination with movable supports for one of the saw-wheels, of a pair of levers acting thereon, a windlass with flexible connections to said levers, a counterweight acting on said windlass, a ratchet-wheel on said windlass, and a weighted saw-straining lever provided with a pawl for rendering the same active and inactive on said ratchet-wheel, at will, substantially as described.

3. In a band-saw mill, the combination with movable supports for one of the saw-wheels, of levers supporting the same, a windlass with flexible connections to said lever, independent adjusting devices in the connections

between said windlass and said movable supports, and a saw-straining weight acting on said windlass, substantially as described.

4. In a band-saw mill, the combination with tubular columns and telescoping sleeves provided with bearings in which the shaft of one of the saw-wheels is mounted, of a pair of supporting-levers connected to said column-sleeves, a windlass with flexible connections to said levers, by means of slotted heads, connecting-pins and adjusting-screws, substantially as described.

5. In a band-saw mill, the combination with tubular columns and telescoping sleeves, the latter having bearings in which the shaft of one of the saw-wheels is mounted, a pair of supporting-levers mounted on knife-edged fulcrums, links connecting said levers to the lower ends of said column-sleeves, and having knife-edged fulcrum engagements therewith, a windlass comprising a shaft with a pair of sheaves, flexible connections between said sheaves and said supporting-levers, a ratchet-wheel on said windlass-shaft, and a weighted saw-straining lever or arm pivoted on said windlass-shaft and provided with a pawl, by means of which it may be rendered active and inactive on said ratchet-wheel at will, substantially as described.

6. In a band-saw mill, the combination with a movable support for one of the saw-wheels, of a supported lever acting thereon, a windlass with a flexible connection to said lever, a weighted saw-straining lever, and means for connecting and disconnecting said weighted lever to said windlass, whereby it may be thrown into and out of action at will.

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

WILLIAM A. WILKINSON.

Witnesses:
MABEL MCGRORY,
F. D. MERCHANT.