No. 770,136. PATENTED SEPT. 13, 1904.

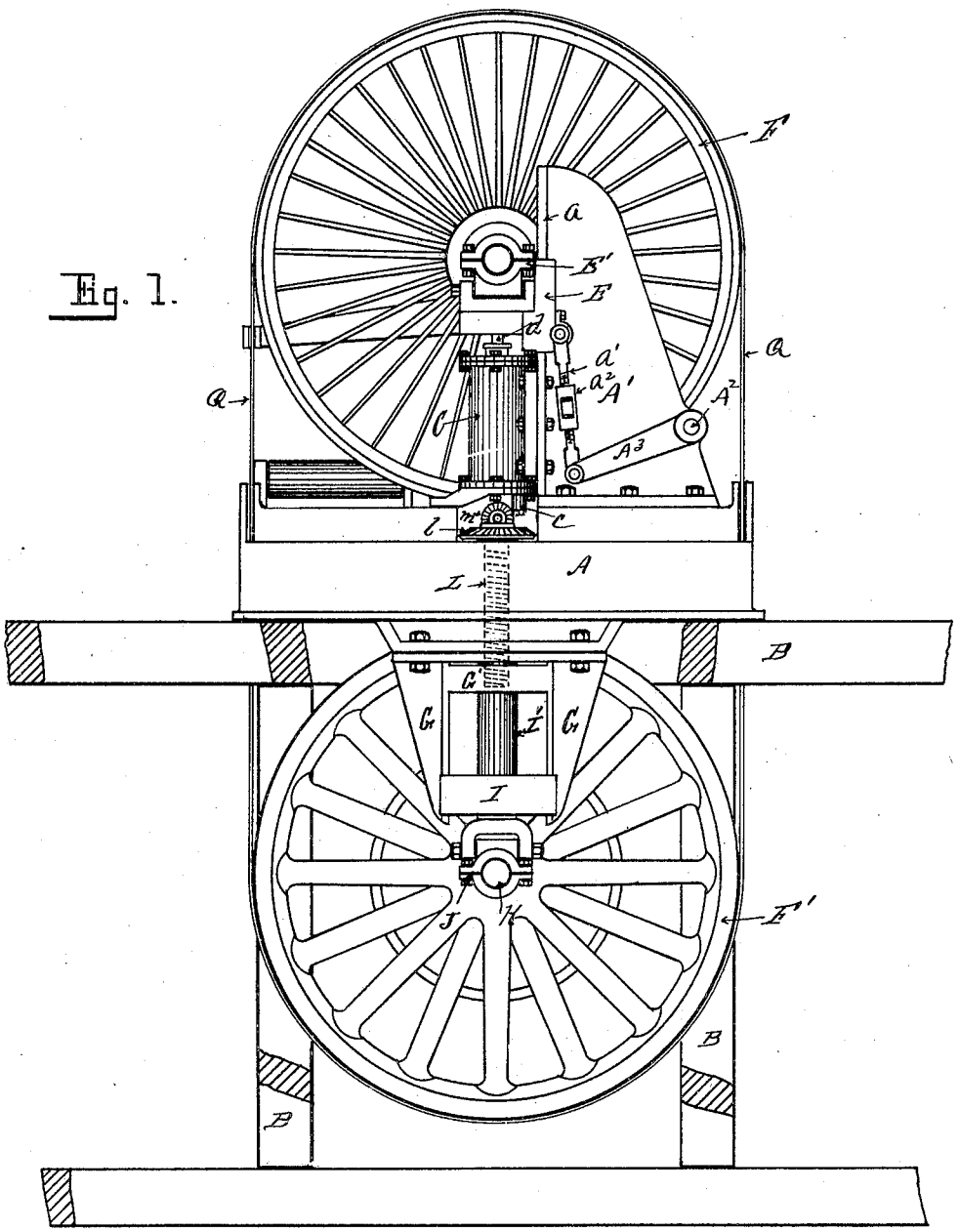
W. M. WILKIN.

BAND SAW MILL.

APPLICATION FILED MAR. 11, 1903. RENEWED JUNE 27, 1904.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
G. J. Mead
Charles A. Mertens

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William M. Wilkin
By J. C. & B. M. Sturgeon
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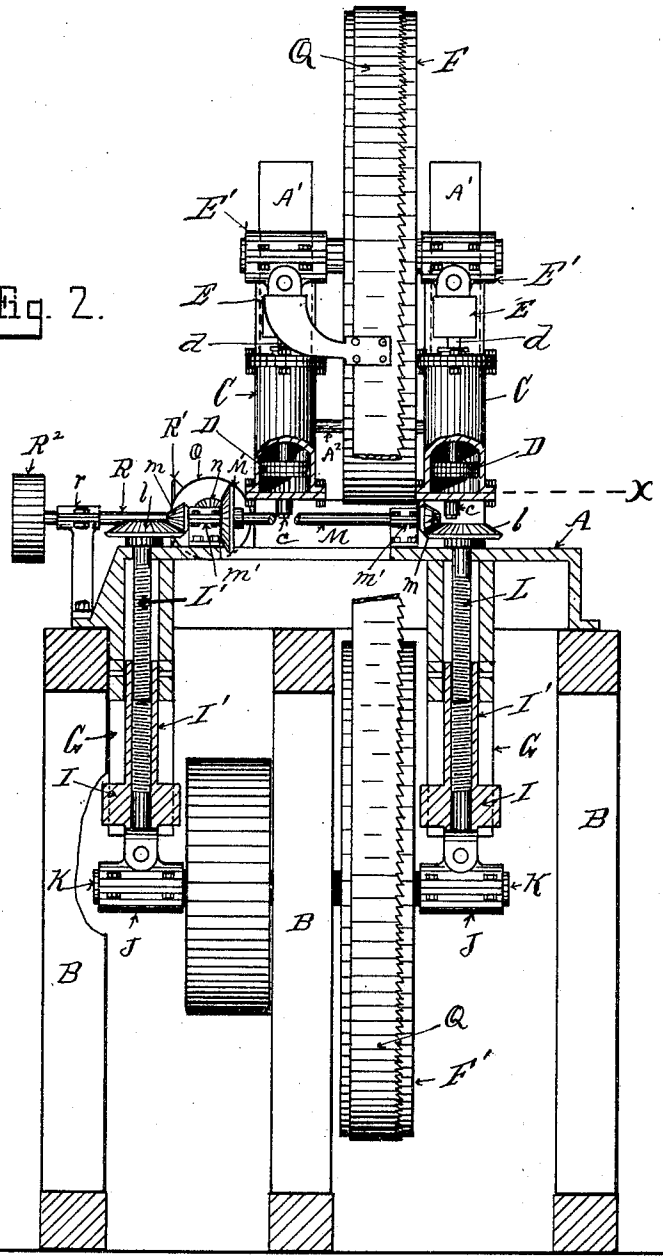
W. M. WILKIN.

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APPLICATION FILED MAR. 11, 1903. RENEWED JUNE 27, 1904.

NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.



Witnesses.

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No. 770,136. PATENTED SEPT. 13, 1904.

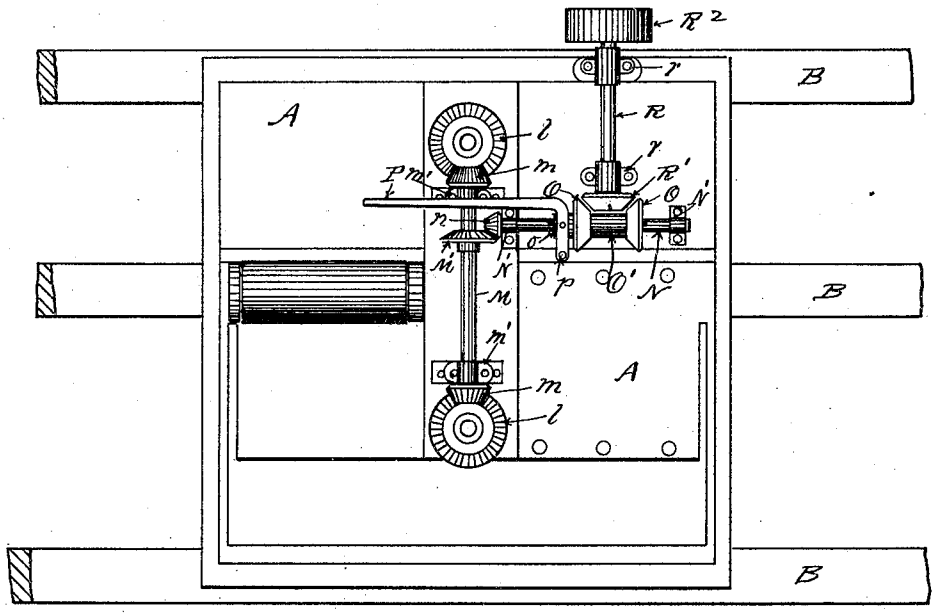
W. M. WILKIN.

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APPLICATION FILED MAR. 11, 1903. RENEWED JUNE 27, 1904.

NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.



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No. 770,136. Patented September 13, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM M. WILKIN, OF MOBILE, ALABAMA.

BAND-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 770,136, dated September 13, 1904.

Application filed March 11, 1903. Renewed June 27, 1904. Serial No. 214,285. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. WILKIN, a citizen of the United States, residing at Mobile, in the county of Mobile and State of Alabama, have invented certain new and useful Improvements in 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to band-saw mills, and has for its object the construction of a band-saw mill in such a manner that the upper and lower saw-wheels can be moved toward and away from each other or up and down in unison, as may be desired. To accomplish this result, I mount the bearings of the upper saw-wheel upon the piston-rods of steam or compressed-air cylinders mounted on the mill-frame so as to form a yielding support therefor, and I mount the lower saw-wheel on vertically-movable supports operated by screws mounted in the mill-frame and actuated in unison by means of a shaft and gearing connecting it with the screws, by means whereof the lower saw-wheel can be raised or lowered at will, or where the upper saw-wheel is supported by steam or air pressure in the cylinders if it is desired to raise or lower the saw-wheels in unison power may be applied to the mechanism supporting the lower saw-wheel bearings to raise or lower them, as desired, and if to raise the wheels the steam or air pressure operates to automatically raise the upper saw-wheel bearings, and if to lower the wheels the steam or air in the cylinders is compressed as the pistons therein move downward until it escapes through safety-valves on the cylinders for that purpose, so that at all times a substantially uniform pressure is maintained upon the saw.

The features of this invention are hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a side view in elevation of a band-saw mill with parts of the mill-frame broken away embodying my invention. Fig. 2 is an end view of the same, partially in elevation and partially in section. Fig. 3 is a plan view of the lower section of the mill-frame and the mechanism thereon with the parts above the line x in Fig. 2 removed.

In the drawings illustrating my invention, A is the base, and A′ the upright part, of the mill-frame, mounted upon a supporting-frame B. On the mill-frame A A′, I mount two vertical cylinders C C, provided at their lower ends with ordinary adjustable pop safety-valves c c of the usual construction, which can be set so as to act at any predetermined pressure in the cylinders C C. In these cylinders there are pistons D D. The piston-rods d d extend out of the tops of the cylinders C C and are secured to sliding shaft-bearing supports E E, which move up and down on vertical guides a a on the upper part A′ of the mill-frame, and upon the sliding shaft-bearing supports E E the upper saw-wheel shaft-bearings E′ E′ are secured, so that the upper saw-wheel F is supported on vertically-adjustable yielding bearings. On the upright part A′ of the mill-frame I mount a rock-shaft A^2, from each end of which an arm A^3 extends forward and from which links a' extend and are pivoted to the sliding shaft-bearing supports E E, so that these parts can only move in unison. The links a' a' I preferably make longitudinally adjustable by means of turnbuckles a^2, whereby the relative level of the shaft-bearings E′ E′ can be adjusted as desired.

It will be observed that many of the features of the mechanism herein described are substantially the same in construction and operation as those shown and described in my Letters Patent No. 549,557, granted November 12, 1895, for a band-saw mill; but herein I have added new features which improve its operation.

On the base A of the mill-frame I secure vertical guide mechanism G G′, on which are mounted vertically-movable shaft-bearing supports I I′ for the shaft-bearings J of the shaft K of the lower saw-wheel F′.

The parts I′ of the shaft-bearing supports are hollow internally-screw-threaded sleeves, in which vertical screws L L′, mounted in the

base A of the mill-frame, operate. These screws are preferably made right and left hand threaded. On the upper ends of these screws L L′ there are bevel-gears *l l*, which intermesh with bevel-pinions *m m* on the transverse shaft M, mounted in bearings *m′ m′* on the base A of the mill-frame. so that the rotation of the shaft M rotates the screws L L′ in unison.

For operating the shaft M, I mount a shaft N in bearings N′ N′ on the frame A, on which shaft there is a bevel-pinion *n*, which intermeshes with the bevel-gear M′ on the shaft M. On the shaft N there is mounted a pair of friction-disks O O, connected by a sleeve O′, which is connected with the shaft N by by means of an ordinary spline and groove, (not shown,) so that it will slide longitudinally thereon, and on the end of the sleeve O there is a grooved collar *o*, which the operating-lever P, pivoted on the mill-frame at *p*, engages, so as to operate the sleeve O′ and the friction-disks O O thereon and move them longitudinally on the shaft N. On bearings *r r* on the mill-frame I mount a shaft R, provided with a bevel friction-disk R′, adapted to engage either of the friction-disks O O when they are brought into contact therewith by means of the operating-lever P, and for operating the shaft R, I provide a pulley R^2 thereon, adapted to be driven by an ordinary belt. (Not shown.)

In operation, power being applied to the shaft R, the operator brings one or the other of the friction-disks O O into contact with the friction-disk R′ on the shaft R by means of the operating-lever P, which operates through the gears *n* M′ to rotate the shaft M and through the gears *m l* the screws L L′, which operate to raise or lower the shaft-bearing supports I I′, and thereby raises or lowers the lower saw-wheel F′, as desired, while at the same time, if desired, the upper saw-wheel F can be lowered or raised by diminishing or increasing the pressure in the cylinders C C. It will thus be observed that the upper and lower saw-wheels can be raised or lowered in unison at will, or either wheel may be raised or lowered independently of the other, so that they can be quickly adjusted for different lengths of band-saw Q or adjusted up and down in unison for sawing different-sized logs with equal facility.

I have herein shown and described a convenient mechanism for raising and lowering the band-saw wheel F′; but it will be readily seen by those skilled in the art to which this invention appertains that the raising and lowering of the lower saw-wheel can be done in many other ways. Therefore I do not desire to confine myself to the exact construction herein shown and described; but,

Having thus shown and described convenient mechanism for utilizing my invention, so as to enable others skilled in the art to construct and use the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a band-saw mill, the combination of a frame, an upper band-saw wheel mounted upon vertically-adjustable piston-bearings, means for automatically raising and lowering said bearings, a lower band-saw wheel mounted in vertically-adjustable bearings, mechanism for raising and lowering the lower band-saw-wheel bearings, and a band-saw mounted upon said band-saw wheels, whereby the range of adjustment of the lower wheel-bearings and the piston-bearings of the upper wheel are sufficient to bring the upper wheel immediately adjacent to the upper surface of any sized log which the mill is designed to saw, and at the same time maintain the proper tension of the saw, substantially as set forth.

2. In a band-saw mill, the combination, of an upper band-saw wheel, automatically-operating steam or compressed-air cylinders supporting vertically-movable bearings for the shaft of the upper band-saw wheel, vertically-movable bearings for the shaft of the lower band-saw wheel, mechanical means for raising and lowering said lower band-saw-wheel bearings, and a band-saw mounted on said band-saw wheels, whereby the range of adjustment of the lower wheel-bearings and the piston-bearings of the upper wheel are sufficient to bring the upper wheel immediately adjacent to the upper surface of any sized log which the mill is designed to saw, and at the same time maintain the proper tension of the saw, substantially as set forth.

3. In a band-saw mill the combination of a mill-frame, automatically-operating vertical steam or compressed-air cylinders on the upper part of said frame, upper band-wheel-shaft bearings mounted on and supported by the piston-rods of said cylinders, puppet-valves in the lower part of said cylinders, an upper band-saw wheel mounted in said bearings, vertical guides on the lower part of said mill-frame, adjustable shaft-bearing supports in said guides, shaft-bearings in said supports, mechanism for raising and lowering said shaft-bearing supports in unison with the upper shaft-bearings or independently thereof, and a band-saw mounted upon said band-saw wheels, whereby the range of adjustment of the lower wheel-bearings, and of the piston-bearings of the upper wheel are sufficient to bring the upper wheel immediately adjacent to the upper surface of any sized log which the mill is designed to saw, the puppet-valves permitting sufficient steam-pressure to raise the upper wheel and maintain the proper saw tension, and at the same time permitting the upper wheel to be lowered and the proper saw tension maintained at all points of its downward and upward traverse, substantially as set forth.

4. In a band-saw mill, a mill-frame, automat-

ically-acting vertical steam or compressed-air cylinders on the upper part of said frame, puppet-valves in the lower part of said cylinders, shaft-bearings supported on the piston-rods of said cylinders, an upper band-saw wheel mounted in said bearings, vertical guides on the lower part of said mill-frame, shaft-bearing supports mounted in said guides, shaft-bearings in said supports, a lower band-saw wheel mounted in said bearings, vertical screws mounted in the mill-frame engaging and operating said lower shaft-bearing supports, shaft and gear mechanism for operating said screws in unison, and a band-saw mounted upon said band-saw wheels, whereby the range of adjustment of the lower wheel-bearings and the piston-bearings of the upper wheel are sufficient to bring the upper wheel immediately adjacent to the upper surface of any sized log which the mill is designed to saw, the puppet-valves permitting sufficient steam or air pressure to raise the upper wheel and maintain the proper saw tension, and at the same time permitting the upper wheel to be lowered and the proper saw tension maintained at all points of its downward or upward traverse, substantially as set forth.

5. In a band-saw mill, a mill-frame, automatically-acting vertical steam or compressed-air cylinders on the upper part of said frame, upper band-saw-wheel-bearing supports on the piston-rods of said cylinders, a rock-shaft on the mill-frame, arms extending therefrom, and adjustable links connecting the arms with the saw-wheel-bearing supports substantially as set forth.

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

WILLIAM M. WILKIN.

Witnesses:

WILLIAM C. FITTS,

W. R. WILKIN.