

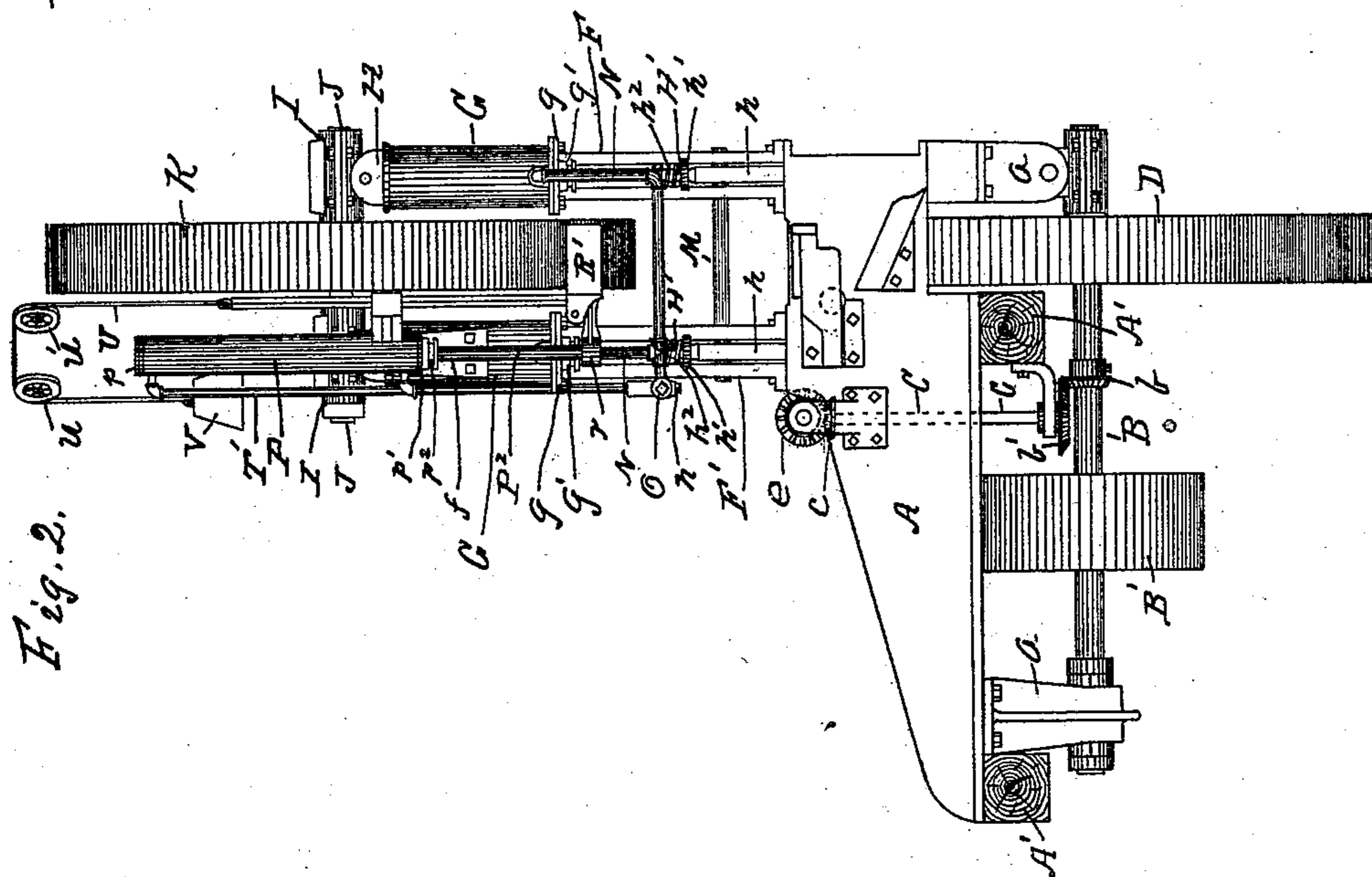
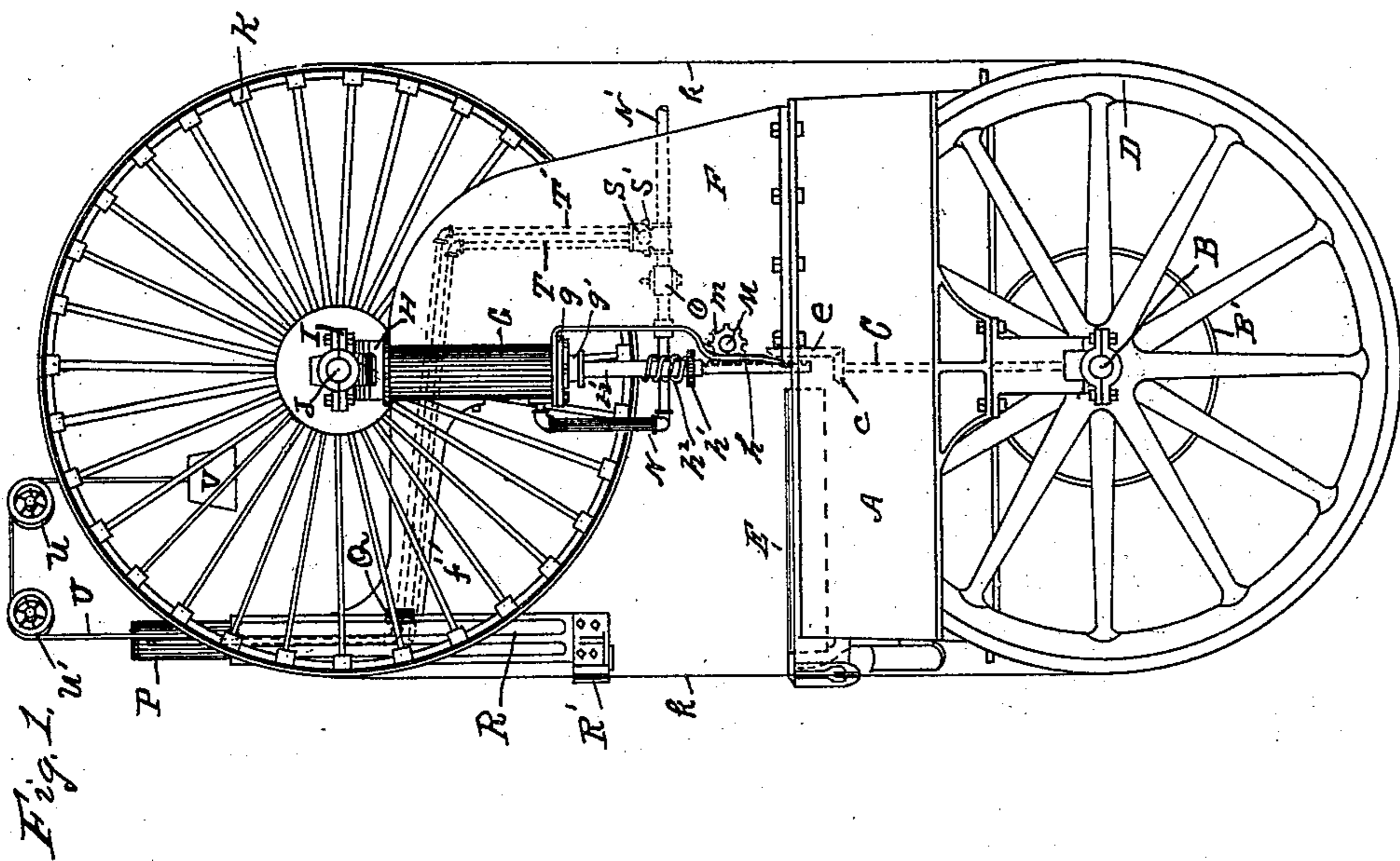
(No Model.)

2 Sheets—Sheet 1.

W. M. WILKIN.
BAND SAW MILL.

No. 549,557.

Patented Nov. 12, 1895.



WITNESSES.

Fred Einfeldt
 A. L. Jackson

INVENTOR.

William M. Wilkin

By *J. C. Sturgeon*
Att'y.

(No Model.)

2 Sheets—Sheet 2.

W. M. WILKIN.
BAND SAW MILL.

No. 549,557.

Patented Nov. 12, 1895.

Fig. 3.

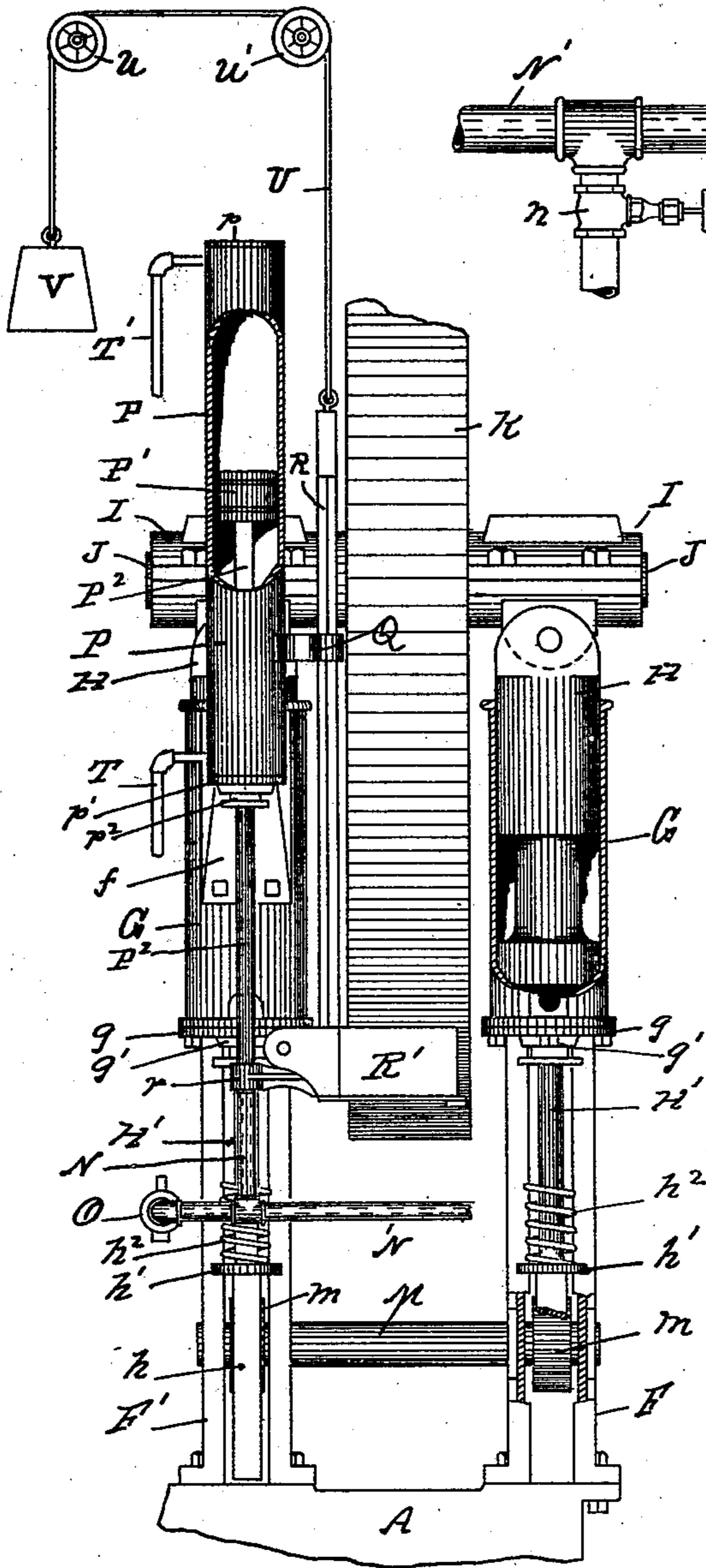
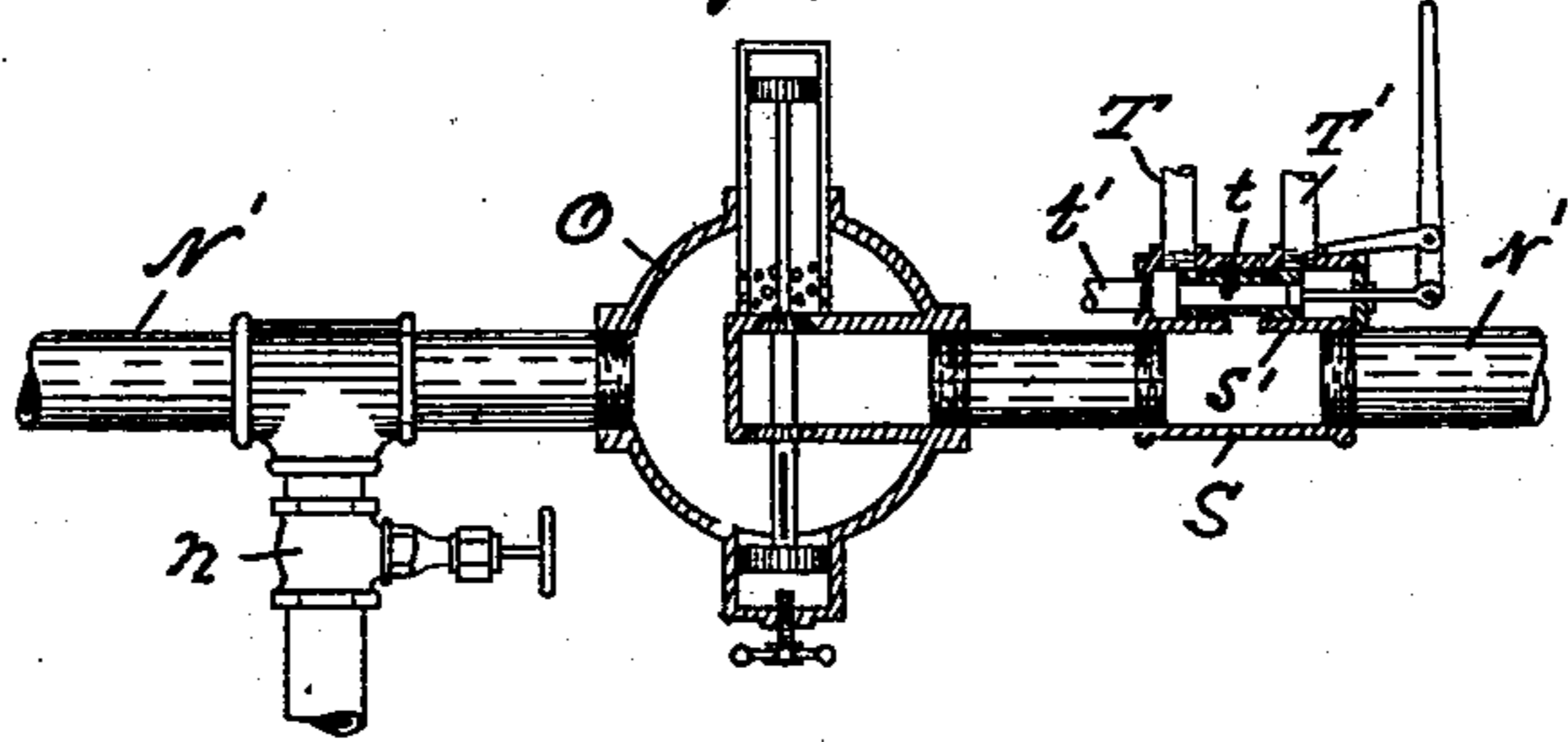


Fig. 4.



WITNESSES.

Fred Einfeldt
A. L. Jackson

INVENTOR.

William M. Wilkin
By J. H. Sturgeon
Atty

UNITED STATES PATENT OFFICE.

WILLIAM M. WILKIN, OF ERIE, PENNSYLVANIA.

BAND-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 549,557, dated November 12, 1895.

Application filed April 30, 1895. Serial No. 547,641. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. WILKIN, a citizen of the United States, residing at the city of Erie, in the county of Erie and State of Pennsylvania, 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 consists in the improvements in band-saw mills hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a front view in elevation of a band-saw mill embodying my invention. Fig. 2 is a side view in elevation of the same. Fig. 3 is detail view of a section of the same partially in elevation and partially in section. Fig. 4 is a detail view of valve mechanism used in the construction of my invention illustrated in Figs. 1, 2, and 3.

The principal objects of my invention are, first, to so construct a band-saw mill and the mechanism thereof for supporting the wheels upon which the saw is carried that the wheels may be raised and lowered and the strain or tension of the saw governed and regulated by means of fluid applied thereto under pressure; second, to so construct the saw-guide mechanism of a band-saw mill that it may be operated and controlled by means of like fluid-pressure.

Other features of my invention are hereinafter set forth and explained.

In the construction of my improved band-saw mill I secure cylinders to the frame, in which I place pistons, which are connected with the bearings of the wheels carrying the saw. To these cylinders I supply fluid under pressure controlled by means of suitable valves, preferably using a somewhat elastic fluid—such as steam, compressed air, or gas—such pressure being applied thereby to the cylinders as will support the wheel or wheels, and also produce the necessary strain or tension upon the saw during its operation, and

in a somewhat similar way I secure a cylinder to the frame, within which is a piston to which the saw-guide is secured, to which like fluid-pressure may be supplied, so as to support and raise and lower the saw-guide as desired.

In the accompanying drawings I illustrate a band-saw mill embodying a convenient construction of my invention, in which A is the base of the frame adapted to be secured to a suitable support A'. To this frame A are secured hangers *a*, upon which the shaft B of the lower band-saw wheel D is supported, a suitable pulley B' being also secured to the shaft B, through which power may be transmitted thereto. Upon the shaft B is also secured a miter-gear *b*, which intermeshes with a miter-gear *b'*, an upright shaft C, which drives a live-roll E, mounted in the upper part of the base A by means of miter-gears *c* *e*. Upon the base A of the frame is secured the upright portions F F' of the frame. To these parts of the frame are secured upright cylinders G, provided on their lower ends with heads *g*. In these cylinders are plungers or pistons H, the upper ends of which project above the upper ends of the cylinders G, and to the upper ends of the plungers or pistons H are secured the bearings I of the shaft J of the upper band-saw wheel K. To the lower ends of the plungers or pistons H are secured piston-rods H', which project downward through stuffing-boxes *g'* in the cylinder-heads *g*, and are provided with rack-gears *h* thereon, and mounted in bearings on the parts F F' of the frame is a transverse shaft M, provided with spur-pinions *m* of equal size, which intermesh with the rack-gears *h*, so that the plungers or pistons H must move up and down substantially in unison with each other. On the rods H' above the racks *h* are secured collars *h'*, above which are placed strong spiral springs *h''*, which in case of the breakage of the saw *k*, so as to release the plungers or pistons H from the pressure exerted thereon by the strain or tension of the saw *k* when in place on the saw-wheels D and K, so as to permit the plungers or pistons H to be suddenly moved upward by the elasticity of the fluid in the cylinders G, operate as buffers by contacting with the heads *g* of the cylinders G, and taking up the force of such an upward

movement of the plungers H, so as to prevent any sudden shock which might cause breakage or other injury to the mechanism.

To the lower parts of the pistons G, I connect pipes N, which communicate by means of a supply-pipe N' with a source from which fluid can be supplied to said cylinders G under pressure. For controlling this pressure a suitable reducing and regulating valve O (shown in dotted lines in Fig. 1 and in detail in Fig. 4) is inserted in the supply-pipe N', this valve operating to maintain a uniform pressure in the pipes N N'. No novelty, however, is claimed in the construction of this valve, as any suitable regulating-valve can be used therein, and further description thereof herein is therefore not deemed necessary. In the pipe N' is also an escape-cock n, by means whereof the fluid in the cylinders G can be allowed to escape when desired.

On the front side of the cylinder G, secured to upper part I' of the frame, is an arm f, which projects forward far enough to receive and support a saw-guide slide Q, in which the vertical arm R, supporting the saw-guide R', operates. On the arm f is also secured a vertical cylinder P substantially in line with the rear end r of the saw-guide R'. This cylinder P is provided with heads p and p', and through the lower head p a piston-rod P² passes down through a stuffing-box p² thereon and is secured to the rear end r of the saw-guide R'.

To the upper end of the arm R, supporting the saw-guide R', is secured a rope U, which passes up over pulleys u and u', and is provided with a counterweight V, adapted to counterbalance the weight of the saw-guide mechanism, the rod P², and the piston P'.

In the supply-pipe N' outside of the regulating-valve O there is a double T S, provided with two outlets, in which there is a double valve S', controlling both of said outlets. To these outlets are secured pipes T and T', the pipe T connecting with the lower end of the cylinder P and the pipe T' with the upper end of said cylinder. The double valve S' has a central longitudinal opening t, and the shell of the valve S' is also provided with an escape-pipe t', so that the valve S' will operate to open the pipes T and T', and allow the fluid to escape simultaneously from both ends of the cylinder P through the escape-pipe t', or to open either one of said pipes and admit fluid to one end of the cylinder P, and at the same time allow the fluid to escape through the other pipe from the opposite end of said cylinder.

In operation, the fluid is let into the cylinders G at such pressure as will raise the band-saw wheel K and support it at such height as will put the proper strain and tension upon the saw k. This fluid being preferably of an elastic nature, the jar of the operation of the saw is taken up thereby, and in addition thereto sudden jars and excessive strains thereby put upon the saw are prevented, so as to avoid breakage of the saw therefrom.

The supply of fluid to the cylinders G is kept up to the normal pressure required by permitting a small supply of the fluid to continuously pass through the regulating-valve O to compensate for any condensation or leakage of the fluid used in the cylinders G. In operating the saw-guide R the saw-guide mechanism, being counterbalanced by the weight V, remains in any position to which it is moved, unless it contacts with some obstruction on the log passing under it, in which case the elasticity of the fluid in the cylinder P permits it to be automatically raised by such contact, so as to pass over such obstruction. When, however, the operator desires to raise the saw-guide by means of the valve S', he lets sufficient fluid into the lower end of the cylinder P to raise the piston P' and the saw-guide R, connected therewith, to the required height, and in case it is desired to lower it again the operator has simply to reverse the movement of the valve S', which allows the fluid to escape from the lower end of the cylinder P, and at the same time lets in sufficient fluid into the upper end of the cylinder P to move the piston P' downward the distance required.

I have thus shown and described a convenient construction of band-saw mill embodying my invention which will enable others to construct and utilize the same; but I am, however, aware that many modifications can be made therein without departing from the spirit of the invention herein shown and described. Therefore

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

1. The combination in a band-saw mill, of wheels for carrying a band-saw, and supporting mechanism for the shaft bearings of said wheels sustained and actuated by fluid supplied to said supporting mechanism, substantially as and for the purpose set forth.

2. The combination in a band-saw mill, of wheels for carrying a band-saw, supporting mechanism for the shaft bearings of said wheels sustained and actuated by fluid supplied to said supporting mechanism under pressure, and valve mechanism for adjusting and controlling the pressure of the fluid on said supporting mechanism, substantially as and for the purpose set forth.

3. The combination in a band-saw mill, of wheels for carrying a band-saw, movable bearings for the shaft of one of said wheels, movable supporting mechanism for said bearings actuated and sustained by fluid supplied thereto under pressure, and valve mechanism for adjusting and controlling the pressure of the fluid on said movable supporting mechanism, substantially as and for the purpose set forth.

4. The combination in a band-saw mill, of wheels for carrying a band-saw, cylinders on the frame of the machine, plungers or pistons in said cylinders adapted to be actuated by fluid supplied to said cylinders, and shaft

bearings for said wheels actuated and supported by said plungers or pistons, substantially as set forth.

5 The combination in a band-saw mill, of
wheels for carrying a band-saw, cylinders on
the frame of the machine, plungers or pistons
in said cylinders adapted to be actuated by
fluid supplied to said cylinders, mechanism
so coupling said plungers or pistons together
10 that they will move in unison in said cylinders,
and shaft bearings for said wheels actuated
and supported by said plungers or pistons,
substantially as set forth.

6 The combination in a band-saw mill, of
15 wheels for carrying a band-saw, cylinders on
the frame of the machine, plungers or pistons
in said cylinders adapted to be actuated by
fluid supplied to said cylinders under pressure,
shaft bearings for said wheels actuated
20 and supported by said plungers, and valve
mechanism for adjusting and controlling the
pressure of the fluid in said cylinders, substantially
as and for the purpose set forth.

7 The combination in the saw-guide mechanism
25 of a band-saw mill, of a saw-guide, a
cylinder on the frame of the machine, a piston
in said cylinder directly connected with the

saw-guide, and a pipe leading from a suitable
source of supply to the end of said cylinder
and adapted to supply fluid under pressure 30
thereto, and valve mechanism adapted to control
the flow of such fluid, substantially as
and for the purpose set forth.

8 The combination in the saw-guide mechanism
of a band-saw mill, of a saw-guide 35
mounted in vertical guides, a cylinder secured
to the upper part of the frame of the machine,
a vertically moving piston in said cylinder directly
connected with the saw-guide, counter-
balance mechanism connected with the said 40
guide, pipes leading from a suitable source
of supply to the ends of said cylinder and
adapted to supply fluid thereto under pressure,
and valve mechanism in said pipes
45 adapted to control the flow of the fluid to said
cylinder, substantially as and for the purpose
set forth.

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

WILLIAM M. WILKIN.

Witnesses:

FRED EINFELDT,
H. J. CURTZE.