

(No Model.)

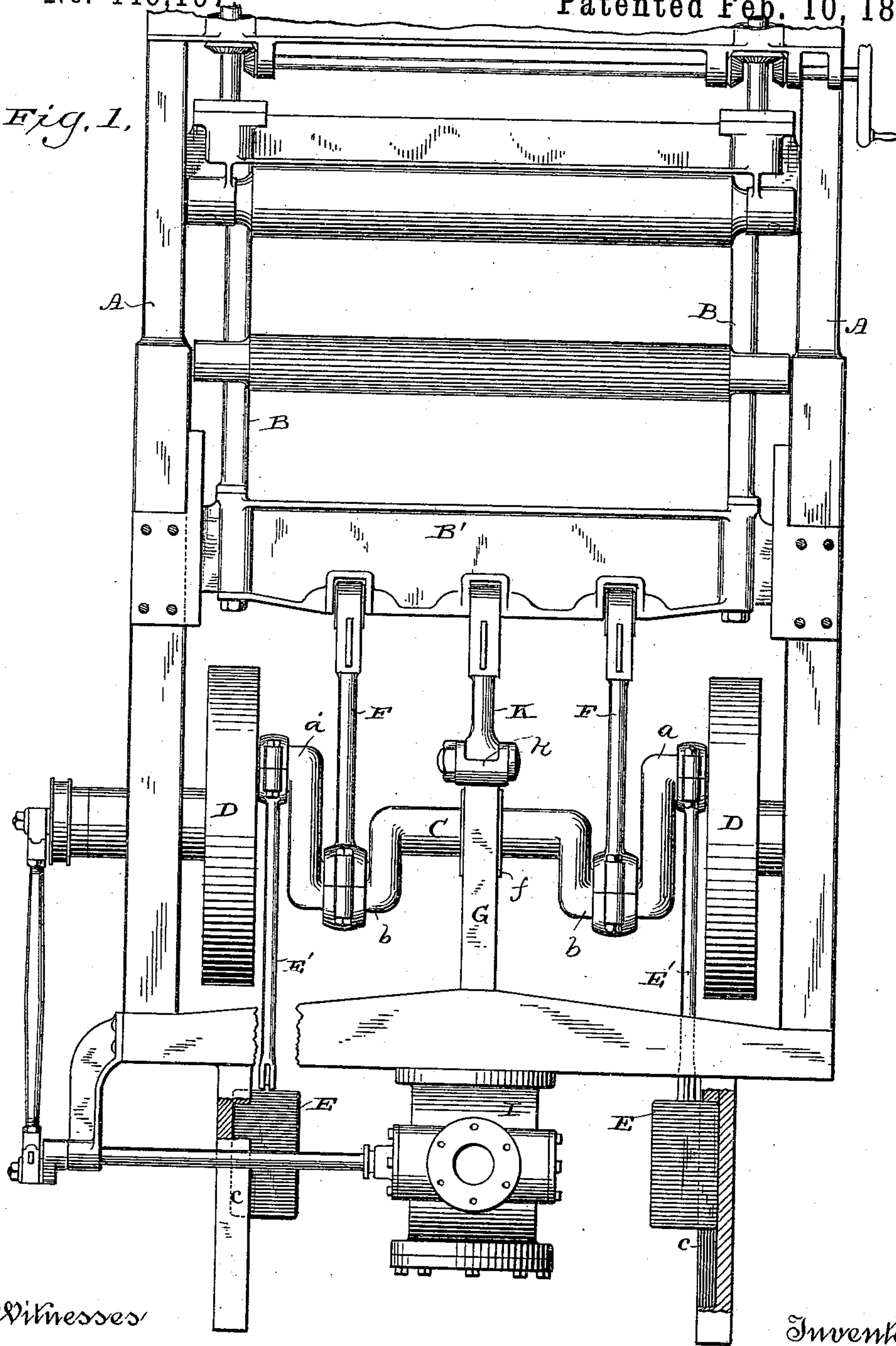
2 Sheets—Sheet 1.

T. S. WILKIN.
GANG SAW MILL.

No. 446,197.

Patented Feb. 10, 1891.

Fig. 1.



Witnesses
Geo. W. Young
Wm. K. Lutz

Inventor
Theodore S. Wilkin

By J. H. Underwood
Attorneys

(No Model.)

2 Sheets—Sheet 2.

T. S. WILKIN.
GANG SAW MILL.

No. 446,197.

Patented Feb. 10, 1891.

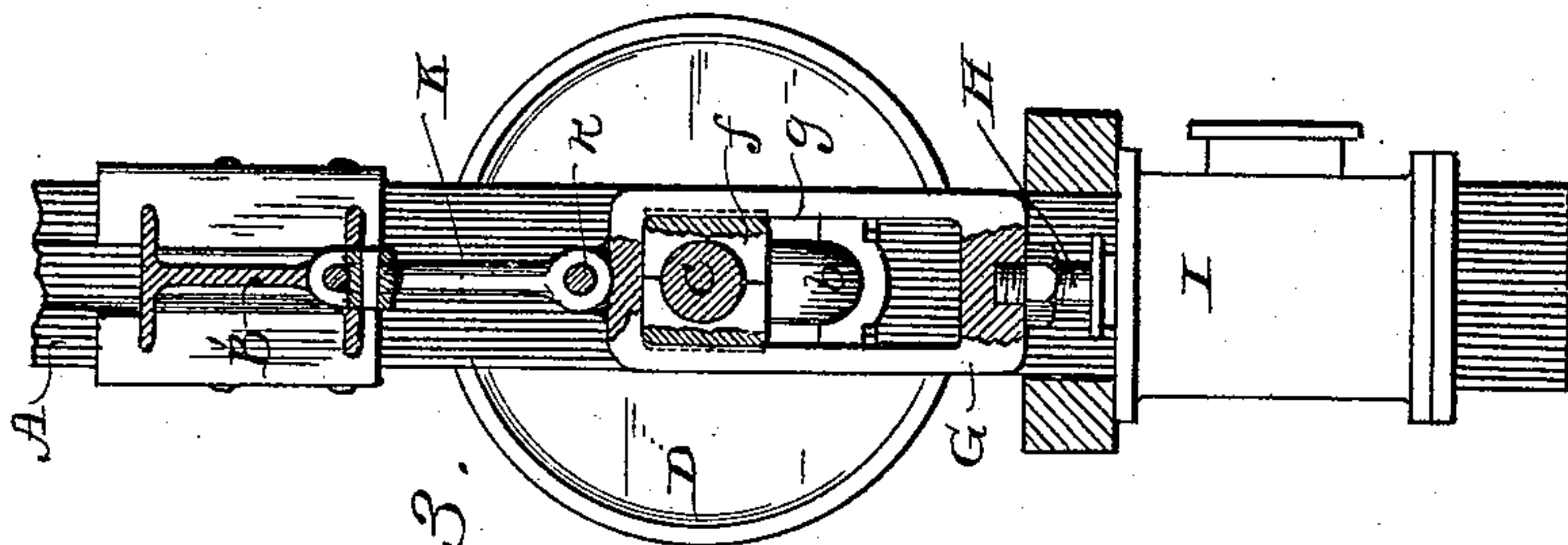


Fig. 3.

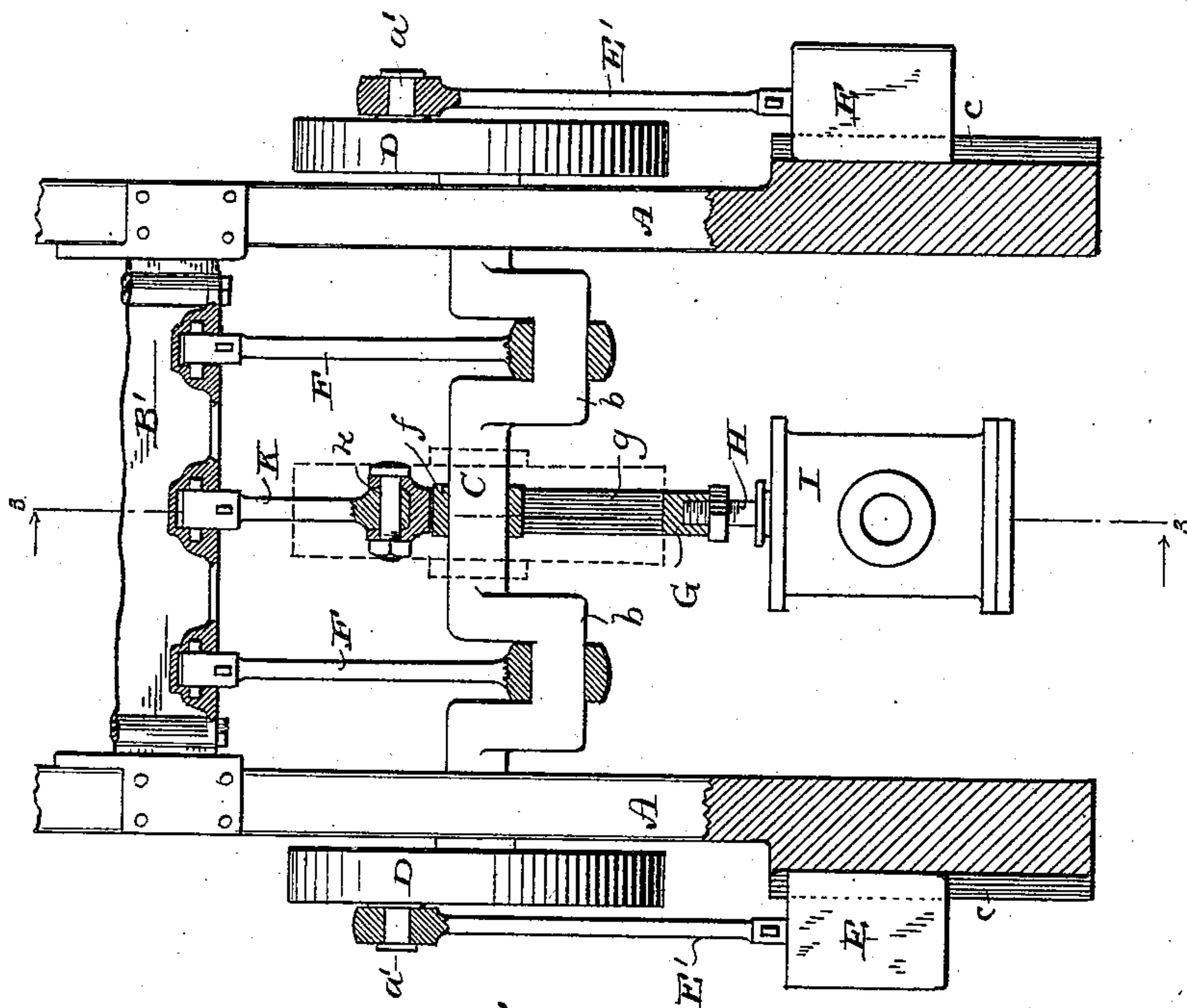


Fig. 2.

Witnesses
Geo. W. Young.
Wm. Klug

Inventor
Theodore S. Wilkin

By J. H. & H. W. Wood
Attorneys

UNITED STATES PATENT OFFICE.

THEODORE S. WILKIN, OF MILWAUKEE, WISCONSIN.

GANG-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 446,197, dated February 10, 1891.

Application filed April 23, 1888. Serial No. 271,555. (No model.)

To all whom it may concern:

Be it known that I, THEODORE S. WILKIN, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Gang-Saw Mills; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to the gates in which the gang-saws are strained and work; and my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described, and pointed out in the appended claim.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a machine constructed in accordance with my invention. Fig. 2 is a front elevation, partially in vertical cross-section, of a machine embodying certain modifications of construction and arrangement. Fig. 3 is a vertical cross-section of the same on the line 3 3 of Fig. 2.

The objects of my invention are to produce a gang-saw sash which shall work freely and evenly in its guides or ways under all varying conditions of work, and which shall be effectively counterbalanced, so as to evenly divide the labor incident to the reciprocation of the sash and prevent all lateral vibration of the machine while in operation. These objects I attain by the construction which I will now proceed to describe.

Referring to Fig. 1 of the drawings, A designates the guide-frame; B, the sash, arranged to reciprocate vertically in said frame, and B' the lower transverse girt of the sash.

C designates the crank-shaft, which actuates the sash B, and which is journaled horizontally in the lower part of the guide-frame.

D D designate fly-wheels, which are mounted upon the end portions of the crank-shaft C, and which lie within the guide-frame A, as shown. The crank-shaft C is in this instance formed with four crank-sections *a a* and *b b*, the said crank-sections *a* extending off of the center of the shaft in one direction and the crank-sections *b* extending off of the center of said shaft oppositely from but equally to

the crank-sections *a*. The portion of the shaft C which extends between the crank-sections *b b* is straight and is in alignment with the journals of said shaft.

E' E' designate two connecting-rods the upper ends of which are journaled upon the crank-sections *a* of the shaft C, and which rods are pendent from said crank-sections within the guide-frame A. Each of these connecting-rods carries at its lower end a counter-weight E, said weights being arranged to reciprocate vertically in guides *c c* on the inner sides of the guide-frame A at the lower ends thereof.

F F designate two connecting-rods the upper ends of which are journaled upon the under side of the girt B' and the lower ends of which are journaled upon the crank-sections *b b*, as shown.

I designates a vertical steam-cylinder, within which is a vertically-reciprocating piston, the piston-rod of which extends upward through the head of the cylinder. To the upper end of said piston-rod is attached the lower end of a connecting-rod G, the upper end of which is journaled upon the under side of the girt B' midway of the length of the latter. This connecting-rod is formed with an elongated slot *g*, (see Fig. 3,) which surrounds the straight middle portion of crank-shaft C, and a box *f*, which is carried by said middle portion of the shaft, is embraced by the sides of said slot, so that as the connecting-rod G reciprocates vertically the sides of its slot *g* work upon said box *f*.

By virtue of the above-described construction it will be seen that the sash B is vertically reciprocated in the frame A by the piston in the cylinder I through the medium of the connecting-rod G, and that the crank-shaft C is rotated by the sash through the medium of the connecting-rods F. This rotation of shaft C and the reciprocation of the sash B are steadied by the counter-weights E, the vertical movements of which do not in the least jar or vibrate the guide-frame A. It will also be seen that by virtue of the position of the connecting-rods F the sash B is caused to work evenly in the guide-frame whatever length said sash may possess and when either two or only one log is being sawed. It will

also be seen that the arrangement of the counter-weights E one at each side of the machine-frame serves to effectually balance the shaft against any lateral strains upon the sash while sawing only at one side of the gang or while sawing different qualities of wood with the entire gang, and thus the positions of weights and the connecting-rods F F relative to the sash and to each other prevent all vibrations of the machine-frame, and also prevent the sash from binding or cramping in its guides.

I may dispense with the direct connection between the sash B and the piston-rod, and, as shown in dotted lines in Fig. 2, I may mount a pulley on the shaft C and belt it to a remote source of power, or one of the fly-wheels D may be so belted, to rotate said shaft. I may also dispense with the crank-sections *a* and connect the rods E' to the fly-wheels D. In the latter event the fly-wheels and counter-weights E are placed outside of the guide-frame A, as shown in Figs. 2 and 3; but in either event the balancing and guiding action of the parts is the same as above described.

I have thus devised a simple and compact mechanism which operates easily and uniformly and without producing any jar or strain upon the guide-frame.

In the present application I do not claim, broadly, the combination, with the framework, of a cranked shaft, a vertically-moving

saw-sash, a vertically-moving counter-balance, and a cylinder relatively arranged, as herein illustrated, reserving this as the subject of an application filed by me on May 21, 1889, Serial No. 311,561.

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

An improved gang-saw mechanism comprising a vertical rectangular frame, a sash arranged to reciprocate vertically in the upper part of said frame, a crank-shaft journaled horizontally in the lower part of the frame, a pair of vertical connecting-rods journaled at their upper ends to the lower girt of the sash and at opposite sides of the middle thereof and at their lower ends to corresponding crank-sections of the crank-shaft, a pair of counter-weights working at the extreme opposite sides of the frame, and a pair of connecting-rods journaled at their lower ends to the weights and connected at their upper ends to the corresponding parts of the crank-shaft, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

THEODORE S. WILKIN.

Witnesses:

S. S. STOUT,

JOHN W. MORRIS.