

SAMUEL WEYMOUTH.

Improvement in Saw Mills.

No. 124,524. Patented March 12, 1872.

Fig. 4.

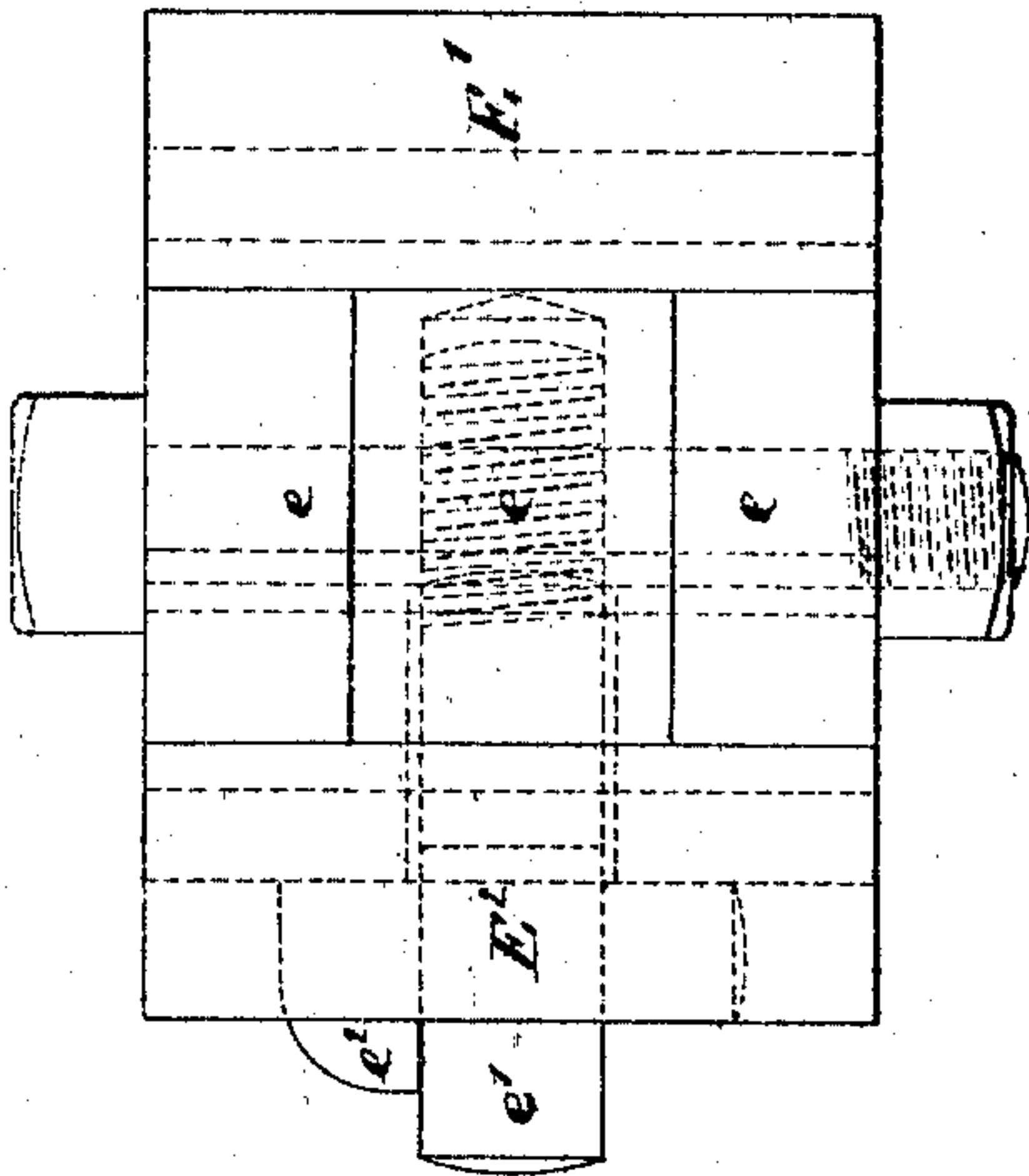


Fig. 3.

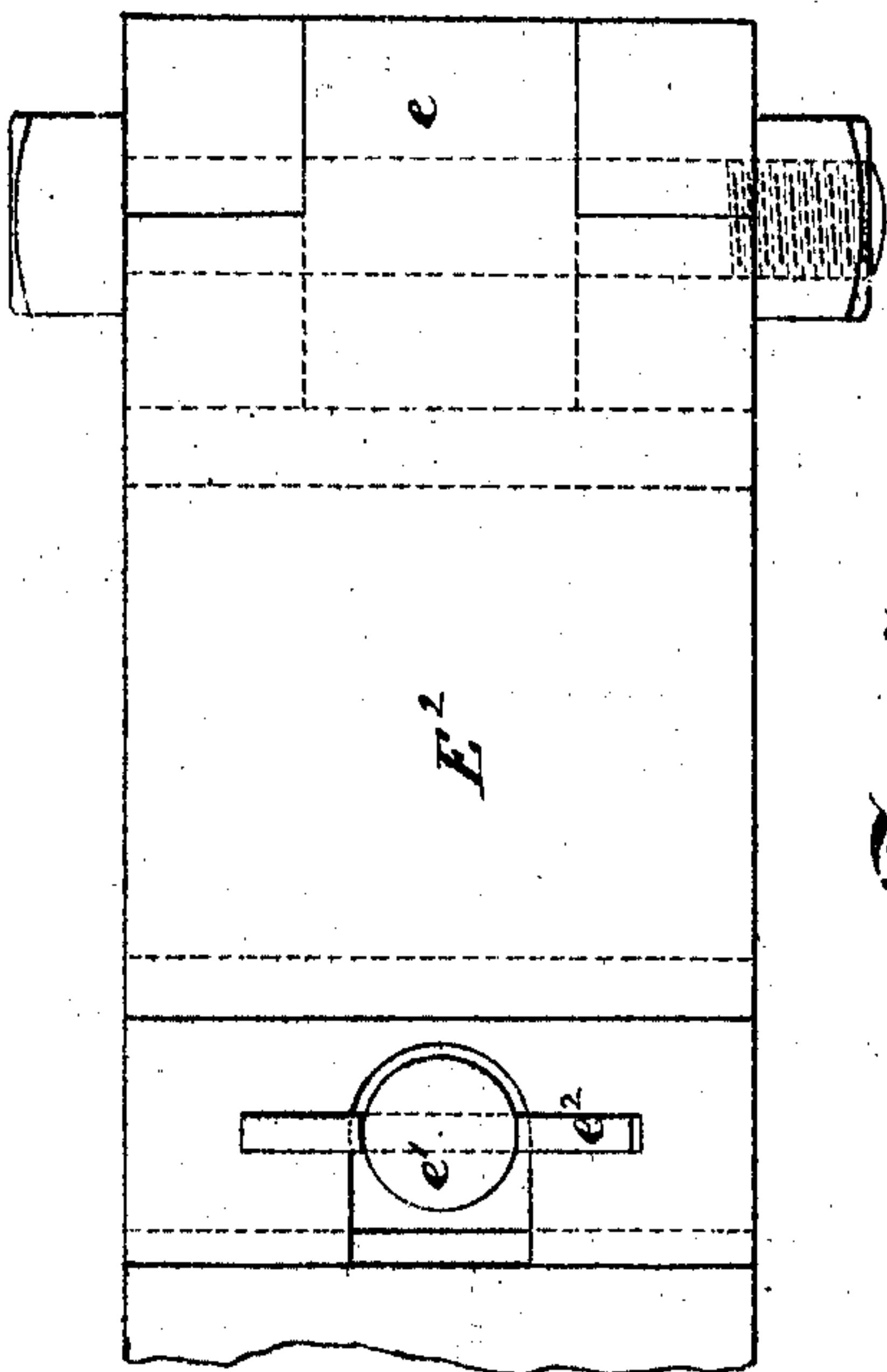


Fig. 5.

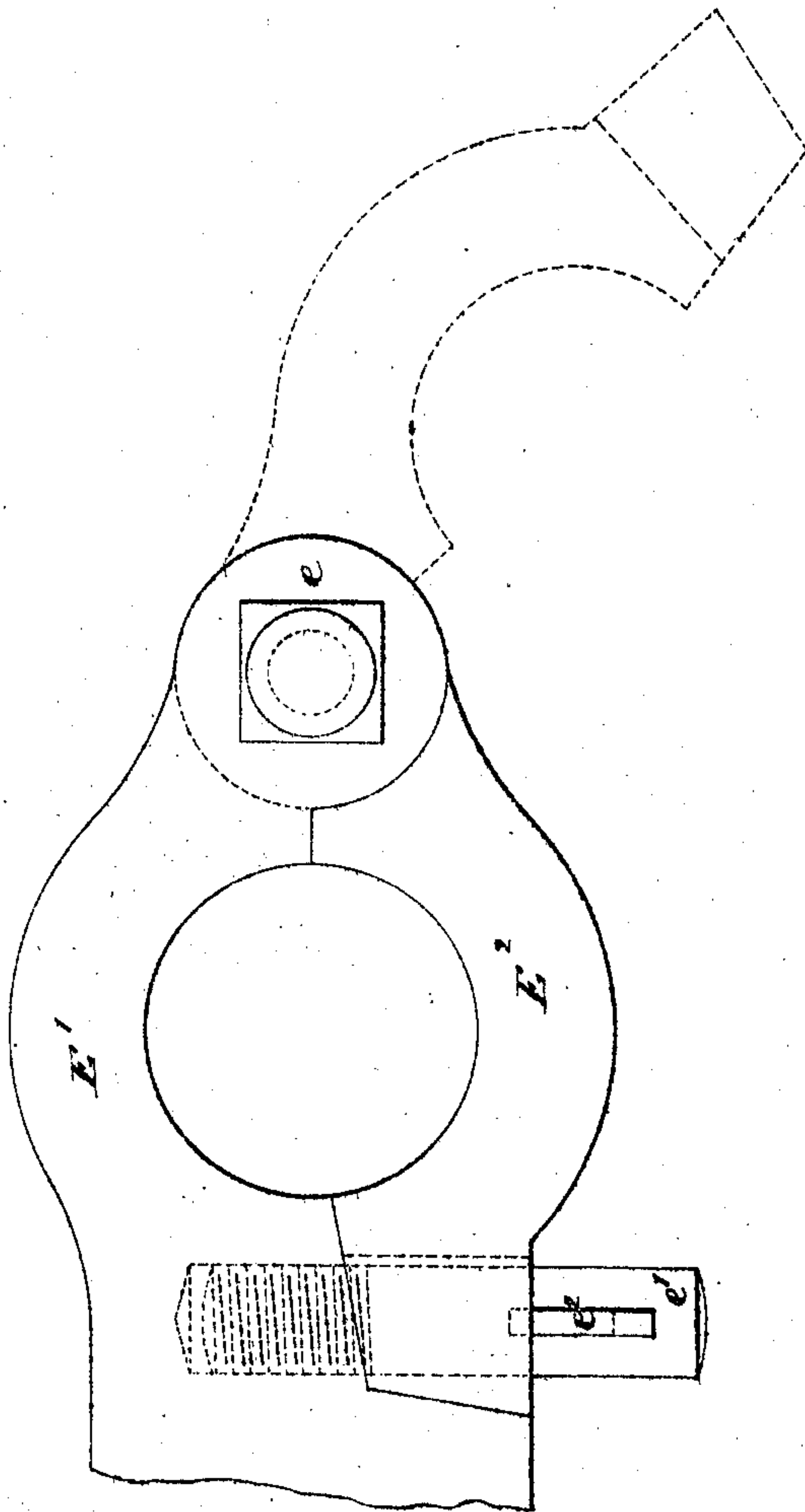
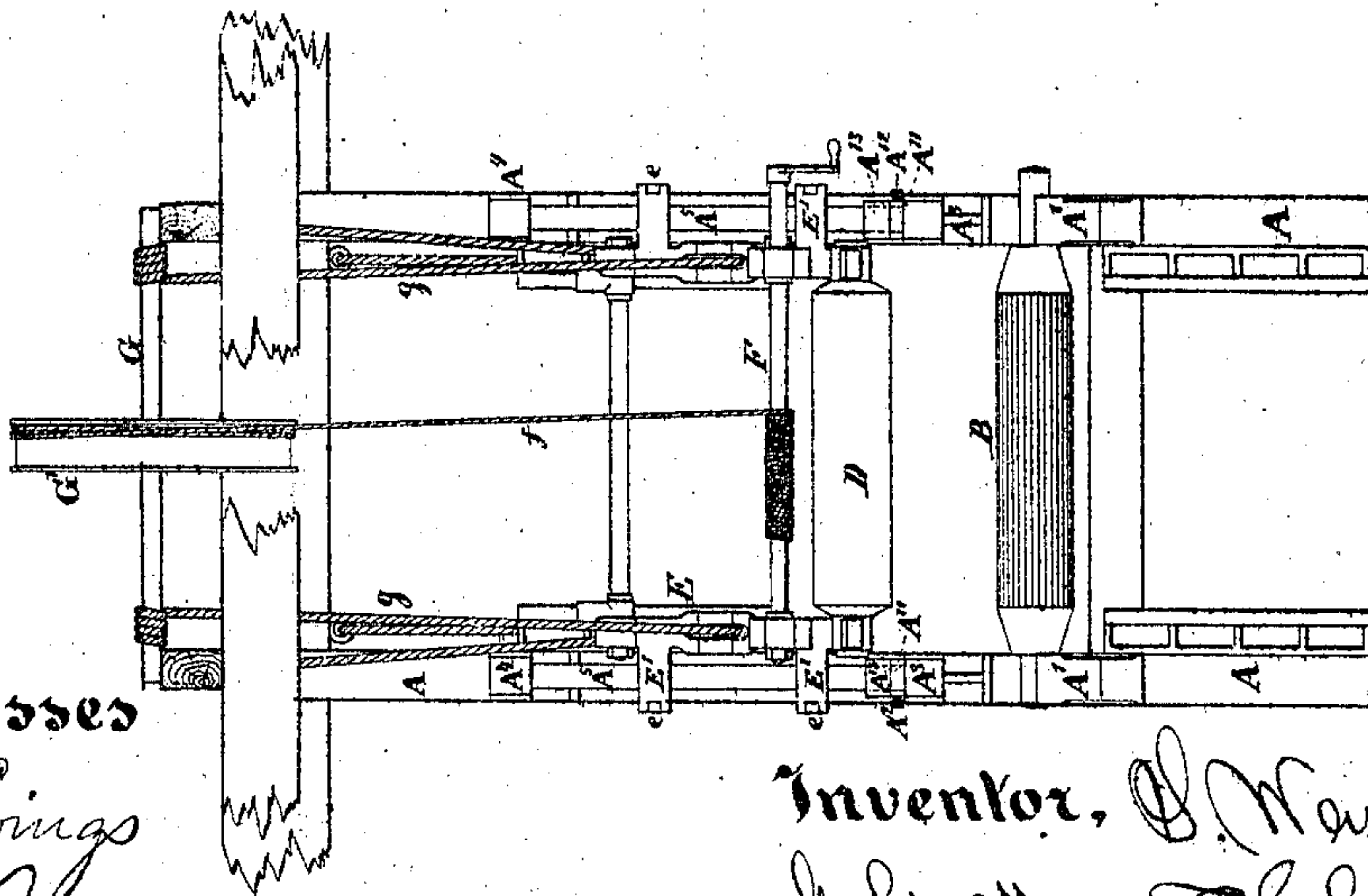


Fig. 2.



Witnesses

C. L. Livings

A. Hermann

Inventor, S. Weymouth

by his attorney

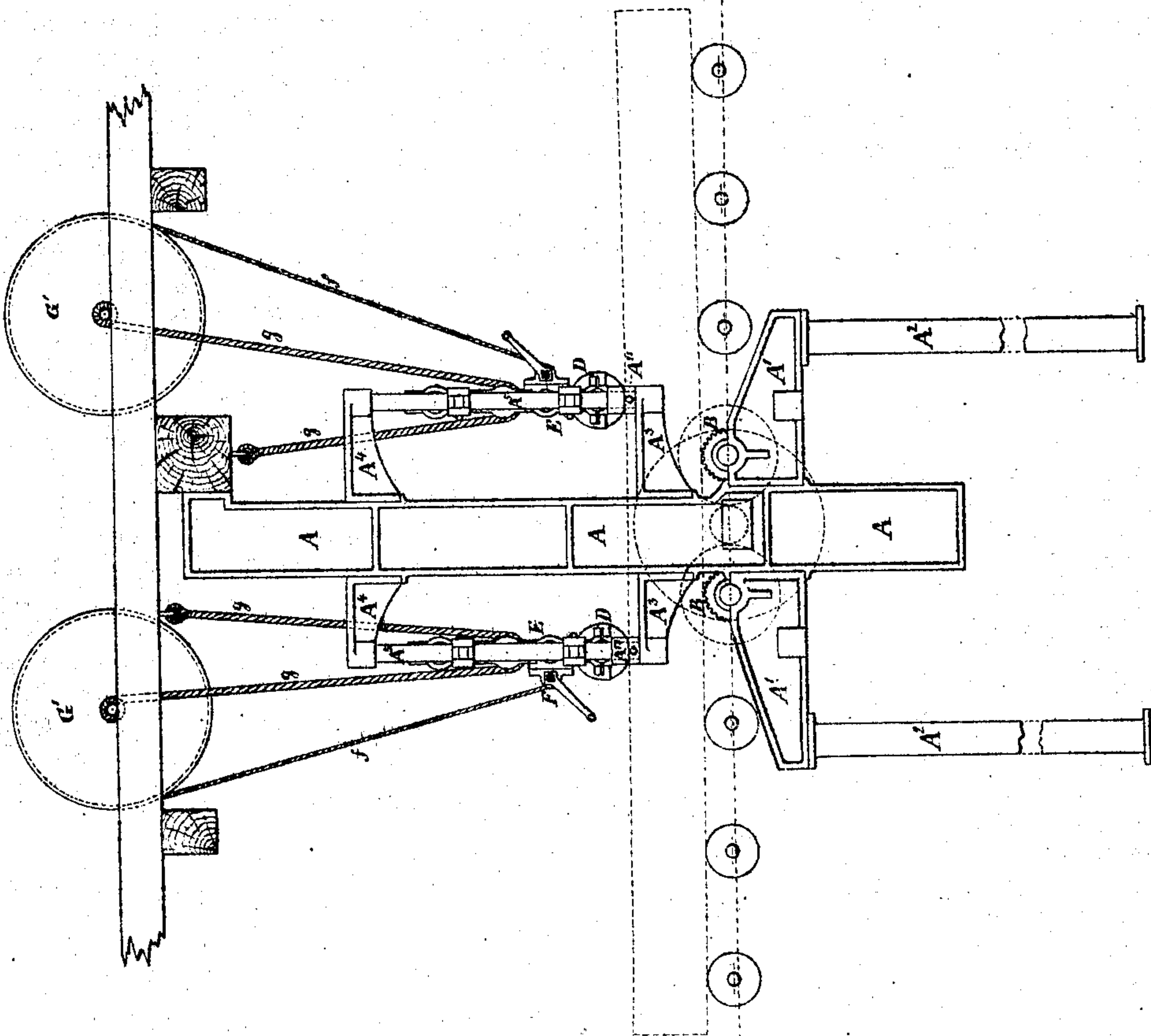
J. L. Sutton

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Fig. 1.



Witnesses,

C. C. Livings.
A. Roerman

Inventor,

S. Weymouth
by his attorney
J. D. Stetson

UNITED STATES PATENT OFFICE.

SAMUEL WEYMOUTH, OF WILLIAMSPORT, ASSIGNOR TO H. F. SNYDER AND G. S. SNYDER, OF SAME PLACE, AND ANTES SNYDER, OF FREEPORT, PA.

IMPROVEMENT IN SAW-MILLS.

Specification forming part of Letters Patent No. 124,524, dated March 12, 1872.

To all whom it may concern:

Be it known that I, SAMUEL WEYMOUTH, of Williamsport, in the county of Lycoming, State of Pennsylvania, have invented certain new and useful Improvements in Saw-Mills, of which the following is a specification:

The invention relates to reciprocating saw-mills, and more especially those in which many saws are mounted side by side, known as gang-saw mills. It consists of improvements in various parts of the framing, and the mounting of the rolls which transport the log.

The following is a description of what I consider the best means of carrying out the invention. The accompanying drawing forms a part of this specification.

Figure 1 is a side elevation of the mill, showing the series of supporting-rolls in position, but with the framing therefor omitted; and Fig. 2 is a front elevation. The scale of the above is three-eighths inch to one foot. The remaining figures show, on a larger scale, the hinges which connect and disconnect the binder roll-frames, and the upright rods on which they are guided. Fig. 3 is an elevation; Fig. 4, an end view; and Fig. 5, a plan view. The scale of these is one-half size.

Similar letters of reference indicate like parts in all the figures. The drawing represents the novel parts, with so much of the ordinary parts as is necessary to indicate their relations thereto.

A A are upright frames, of cast-iron, and A¹ A¹ are lateral frame-pieces, of the same material, rigidly fixed thereto in the positions represented. They support the entire structure on the posts A². The feed-rollers B B are mounted in bearings in these frame-pieces, and perform their usual functions of slowly moving forward the log, which is pressed down thereon. The means for holding down the log and for supporting it at other points are peculiar, but the feed-rollers themselves involve no novelty. A³ A³ and A⁴ A⁴ are smaller side frames, firmly fixed on the framing A above the feed-rolls, and supporting between them stout cylindrical rods, A⁵, which rods carry the framings for the binding-rolls, and allow the latter to be raised and lowered at will, and, under proper conditions, to be swung around out of the way in order to allow access to the

saws. The binder-rolls are indicated by D D. They are mounted in binder-frames E, which embrace the vertical guide-rods A⁵, by means of corresponding hollow cylindrical bearings, which may be opened and closed at will, as indicated by E¹ E². (See Fig. 5.) One-half of each bearing is formed in the parts E¹, which are fixed on the main body of the frame E. The other half is formed in the parts or straps E², which are secured to the parts E¹ by knuckle-joints *e* and bolts and keys *e*¹ *e*². (See Figs. 3, 4, and 5.) When the mill is in condition for use, all these bearings are made to embrace their respective rods A⁵, and the only motion of which the frame E is susceptible is a simple rising and sinking, vertically. But when it is desired to get access to the saws, for sharpening, setting, exchanging, or the like, the frame E and its connections are swung out of the way by disconnecting it from one of the vertical rods A⁵, and causing it to swivel around upon the other. To effect this operation, the key *e*² is driven out of the bolt *e*¹ from both of the bearings on one side of the frame E, and the corresponding straps E² are swung open in the position shown in dotted lines in Fig. 5. This liberates the frame E from its connection to the vertical guide A⁵ on one side, and allows it to swing around on the single vertical guide on the other side, turning on it as a hinge. To hold it up when in this condition, I secure upon each guide A⁵ a stout collar, A¹¹, as shown in Figs. 1 and 2. One of these collars may be secured at any desired elevation by means of a set-screw, A¹², as represented, and the weight of the binder-frame and its contents bears on and is supported by it as it swings around, after being set free from the other guide A⁵. Over each collar A¹¹ I mount a stout ring or hollow cylinder, of rubber, as indicated by A¹³. It is of no effect under any ordinary conditions; but when, in consequence of any accident, the binder-frame is allowed to drop or to descend too rapidly, these springs soften the concussion. To raise and lower the framing E and its connections, when in use, I provide a cranked shaft, F, mounted in suitable bearings therein, and a rope, *f*, which, as the crank is turned, is thereby unwound from a large drum, G', mounted on a shaft, G, supported in the fixed frame-

work above. The slow turning of this shaft G by this means winds up larger ropes or chains, *g*, which run around sheaves in the framing E, and hoist or lower the binding-rolls and their connections, as may be required. In practice, the whole or a greater portion of the weight of such framing E and its connections is usually allowed to bear on the log through the medium of the binder-rolls D^x. It will be understood that these ropes are disconnected, or are set free, by allowing the shaft F to unwind when the frame E is to be swung around out of the way. There are two of these frames E, with the corresponding binder-roll and provisions for hoisting and swinging around. One acts on the log in front of the saws, and the other in the rear of the saws. Both contribute to hold down the log against the considerable lifting force which is liable to be felt when the saws rise. The carrying-rolls should be made as light as is consistent with strength and durability. I prefer a construction in which the main cylindrical surface is lap-welded iron tubing, and the ends cast-iron; but this is not absolutely essential. I attach great importance, however, to the arrangement of the bearings in which they are supported, so that they shall hold the log in a slight curve; or, in other words, shall cause each log to bear very firmly at each end. To effect this, I adjust the bearings in a curved line, as shown in Fig. 1. The upper surface of the feed-rolls B B are lower than the upper surfaces of the nearest adjacent carrying-rolls. The next carrying-rolls proceeding outward toward the end of the log are a little higher, and the next or succeeding a little higher yet. The arrangement is clearly shown in Fig. 1. The curvature of the log should not be carried to such an extent as to prevent the binder-rolls from holding the log firmly down on the feed-rolls, but only to such an extent as to insure a solid bearing of the ends of the logs upon the rolls which are under them. Substantially the same effect of holding the upper sides of the rolls in such relations may be effected by having the rolls of gradually-increasing size toward each end of the series, and placing their bearings in a line; but I prefer rolls of uniform size, as shown. Chains may, of course, be used instead of ropes, to raise the binder-frames by the means shown.

Some of the advantages due to certain features of my invention may be separately enu-

merated, as follows: First, by reason of the arrangement of the supporting-rolls, so that the feed-rolls at the center are the lowest, or the supporting-rolls held under each end of the log are a little higher, the log is made to press more firmly than usual on the rolls which support its ends, and is thereby more firmly held against displacement laterally. The swiveling around of the log is a serious evil in some sawing, and is always liable to occur, even with the most nicely-prepared saws and the strongest pressure on the binder-rolls. This arrangement of the supporting-rolls aids much to ameliorate the evil, and the logs will feed through my saw-mill in mathematical right lines under reasonably favorable conditions. Second, by reason of my bolts *e*¹ and keys *e*² serving, as represented, relatively to the joint or hinge *e* and straps E², and cylindrical guides A⁵ and collar A¹¹ with adjusting means A¹², I am enabled to connect and disconnect the frame E and swing it around very rapidly, at any desired elevation, with little labor or skill. Third, by reason of my springs A¹³, fitted, as shown, under the binder-frame E, I diminish the risk of fracture in case the binder-frames and their connections are allowed to descend too rapidly from any cause.

I claim as my invention—

1. The supporting-rolls, arranged as represented, so as to hold the log with a slight vertical curvature, and adapted to serve relatively to the feed-rolls, and binder-rolls, and saws, as herein specified.
2. The movable frames E and their contained mechanism, mounted on the cylindrical guide-bars A⁵, over the feed-rolls B B, adjacent to the saws, the adjustable collars A¹¹ and confining-keys A¹², and the hinged straps E² turning on the joints *e*, and confined and released to allow the turning of the frames E to obtain access to the saws without complete separation of the straps, all substantially as herein specified.
3. The springs A¹³, arranged as shown, and adapted to soften the fall of the binder-frames E, as herein specified.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

SAML. WEYMOUTH.

Witnesses:

J. D. SNYDER,
T. C. ROGERS.