

(No Model.)

2 Sheets—Sheet 1.

W. A. CAMPBELL.

SAW MILL SET WORKS.

No. 375,800.

Patented Jan. 3, 1888.

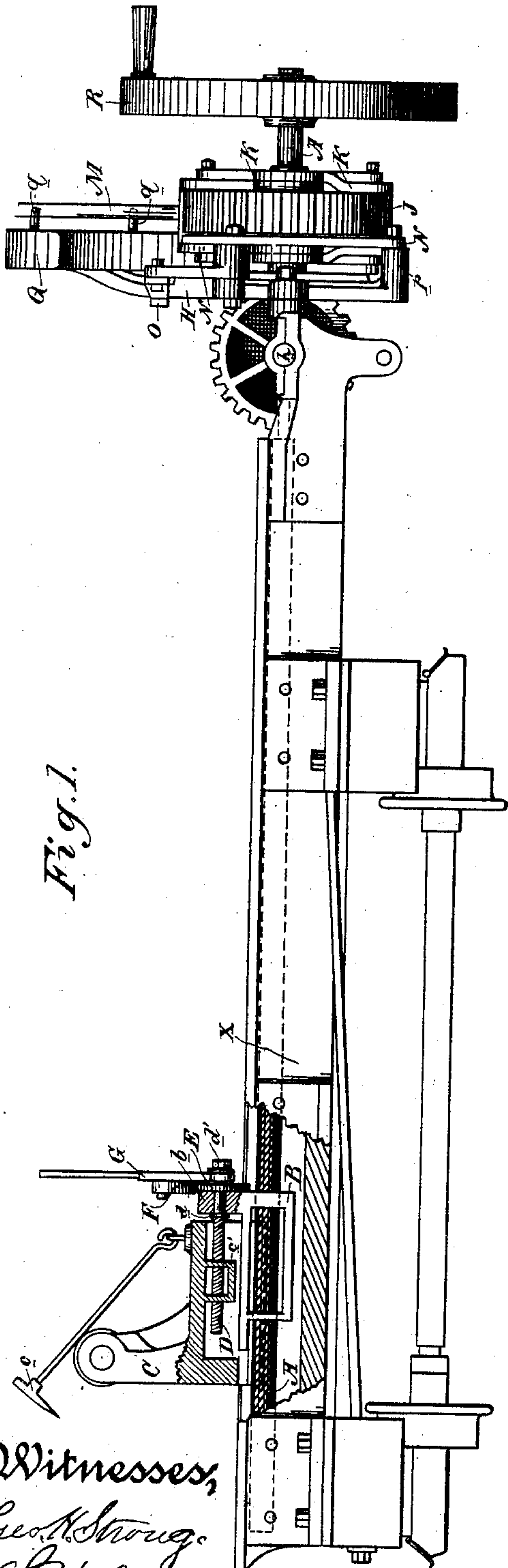


Fig. 1.

Witnesses,  
Geo. H. Strong,  
J. H. House

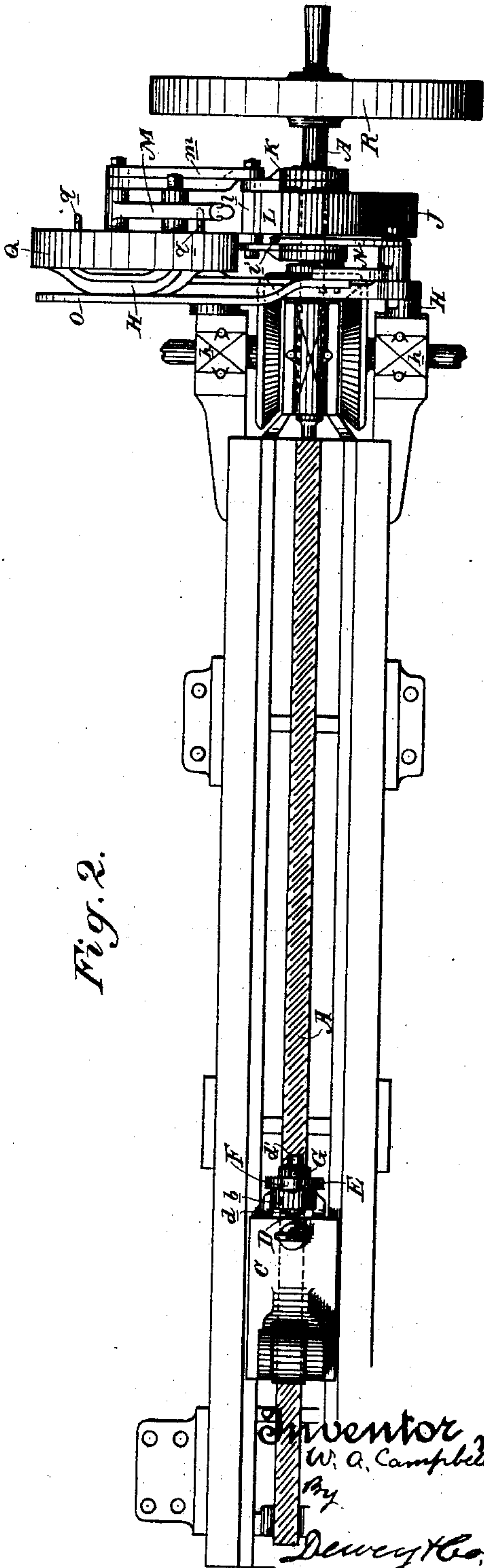


Fig. 2.

Inventor  
W. A. Campbell  
By  
Dewey & Co.  
attys

(No Model.)

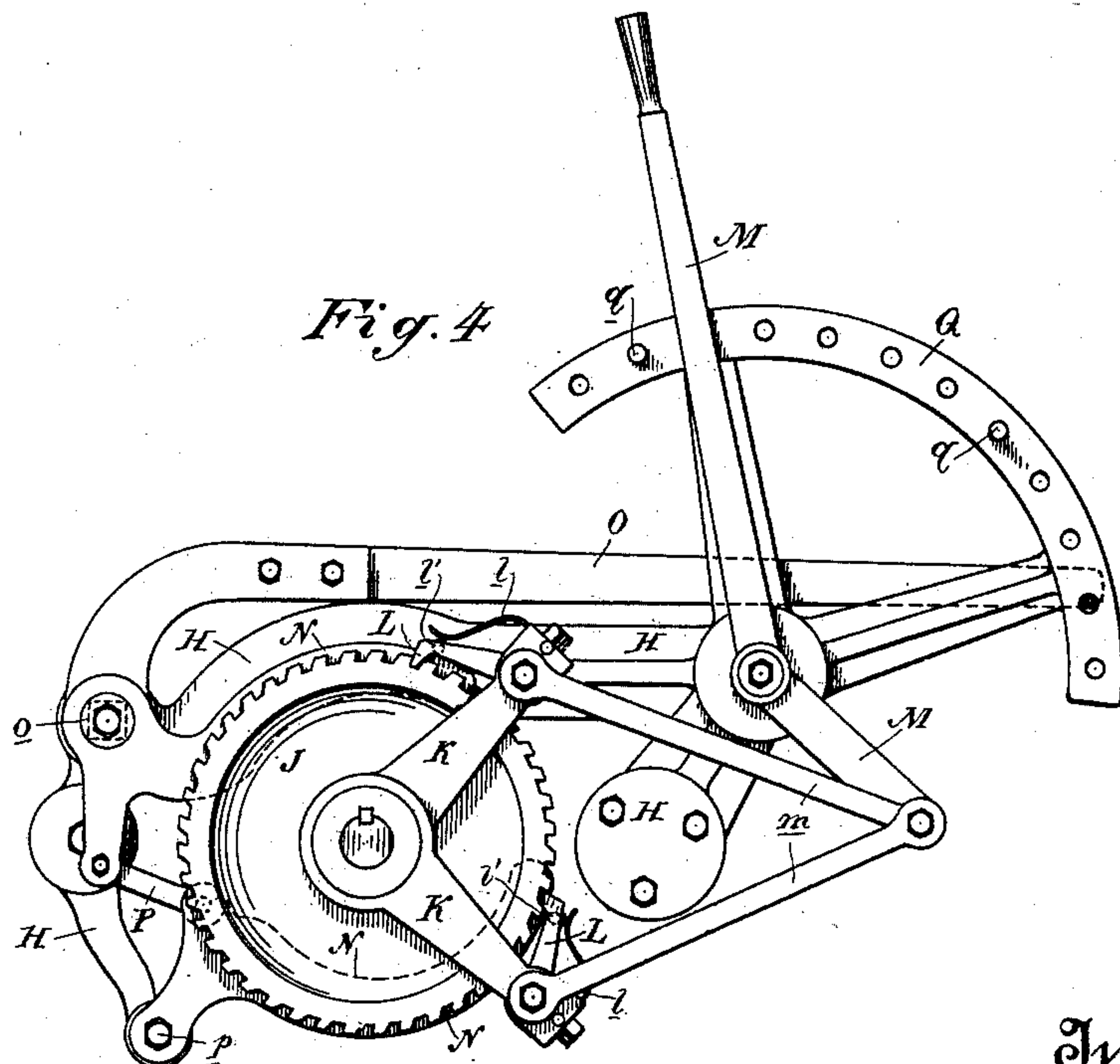
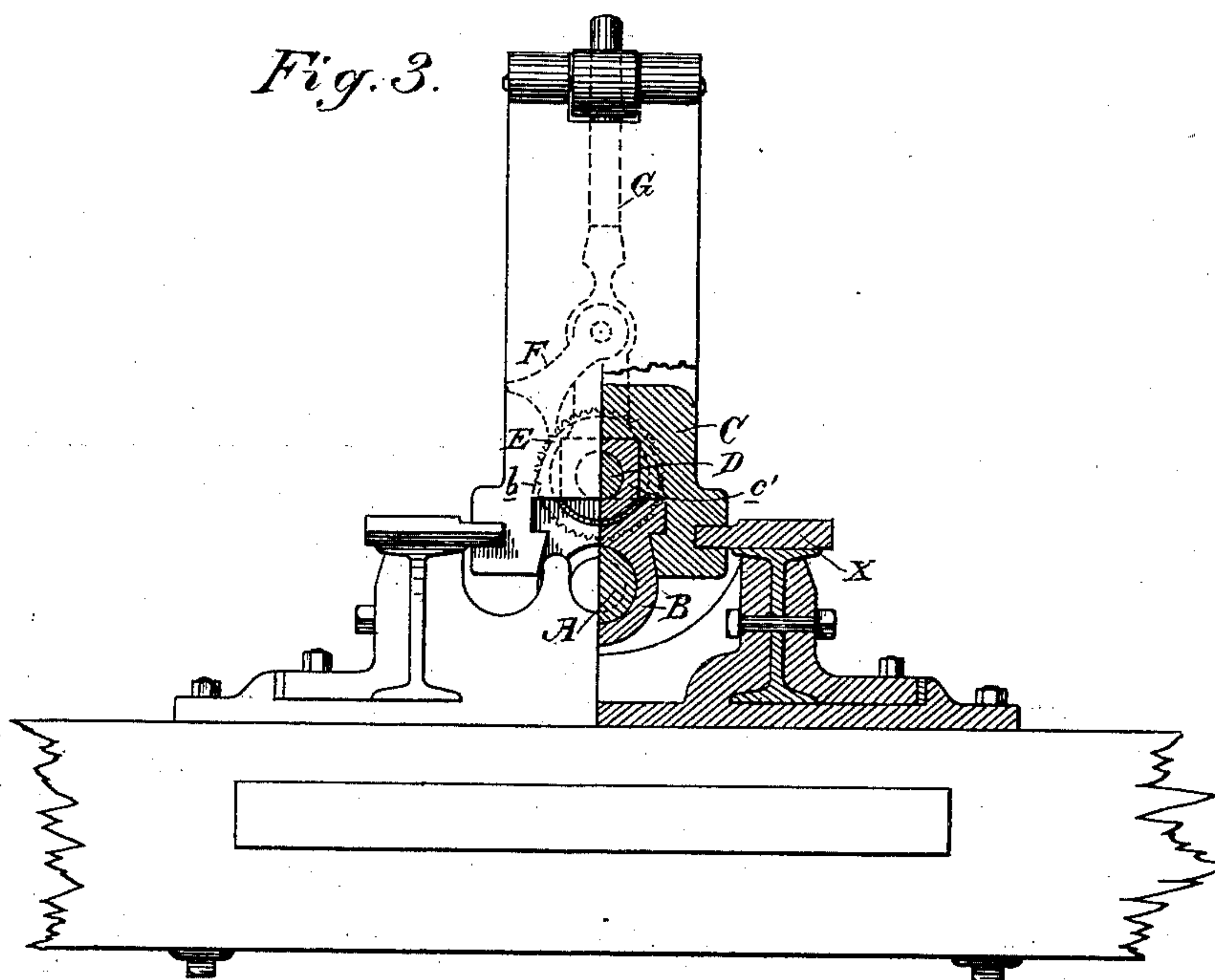
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# UNITED STATES PATENT OFFICE.

WILLIAM A. CAMPBELL, OF PORTLAND, OREGON.

## SAW-MILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 375,800, dated January 3, 1888.

Application filed August 13, 1887. Serial No. 246,907. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. CAMPBELL, of Portland, Multnomah county, State of Oregon, have invented an Improvement in Saw-Mill Set-Works; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of saw-mill set-works by which the standards or knees are adjusted; and my invention consists in a mechanism by which the standards or knees may be moved independently of the main screw, by which they are primarily adjusted, whereby a tapering cut may be made, and in the pawl, ratchet, and lever mechanism by which the main screw, which adjusts the standards or knees, is operated, and the levers by which the pawls are disengaged for the purpose of allowing the standards or knees to be drawn back at the completion of the operation, all of which I shall hereinafter fully explain.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation of my head-block set-works. Fig. 2 is a plan of the same. Fig. 3 is an end elevation and half-section. Fig. 4 is a side elevation of the pawl-and-ratchet mechanism for operating the main screw and for disengaging the pawls.

The main screw A works in a nut, R, which said nut is supported in planed grooves in the standard or knee C, to which the dog c is attached. The nut B may therefore have a movement independent of the movement of the standard. On the back of the nut B is cast a lug, b, which is bored to receive the end of a screw, D, which turns freely in said lug, and is held therein by means of a fixed collar, d, and a nut, d'.

The screw D is made of any required diameter, pitch, and length, and works in a nut, c', which is cast in the standard or knee C. The screw D is actuated by means of a ratchet, E, pawl F, and lever G. The ratchet is keyed to the screw, the lever working loose on a bushing, while the pawl is attached to the side of the lever and engages the ratchet on either side by turning it over on the pins by which it is pivoted to said lever, thereby turning the screw D in either direction.

The operation is as follows: The standard or

knee C moves on planed slides on the main frame X and the nut B moves in planed grooves in the standard or knee; but said nut is of course connected with the standard or knee through the screw D. It will thus be seen that when the screw D, working in the nut c', cast in the standard or knee C, is actuated by the lever, it will move the standard or knee back and forward, which said movement is entirely independent of the movement which it receives from the main screw A through the intervention of the nut B. The standard or knee may thus be set up independent of the primary adjustment through the screw A, and this adjustment of the standard or knee provides for a tapering cut.

The set-works are supported at the back of the head-block by means of a frame, H, which is bolted to lugs cast on the boxes h, which in their turn are bolted to the beams of the main head-block frame.

The screw A is supported at the back end of the head-block in a bearing, and is extended beyond the bearing the required distance to receive a ratchet-wheel, J, which is keyed to the end of the screw. Wrought-iron arms K work loose on the hub of the ratchet-wheel, which is carried out and turned to receive them. Each set of two arms carries a pawl, L, between them, which is supported upon a pin, upon which it turns loosely. The pawls engage the ratchet-wheel, and are held to place by means of steel springs l'. The arms K, which carry the pawls, are connected to the actuating-lever M by means of wrought-iron straps m.

The disengaging-levers N are set at the side of the ratchet-wheel and work against small projections l'' on the side of the pawls. They are actuated by means of a lever, O, to which the upper lever, N, is attached by means of a pin, o, and a square projection on the side of the lever-hub, which fills a hole cut in the lever. A reverse movement is imparted to the lower disengaging-lever, N, by means of a link, P, and fulcrum-pin p in the frame H.

The operation of this mechanism is as follows: It will be seen that upon moving the lever M the two pawls on the face of the ratchet-wheel move in opposite directions, one engaging and moving the ratchet-wheel, and consequently moving the screw A, to which it



is attached, the other sliding over the teeth of the ratchet-wheel without engaging them. When the movement of the lever is reversed, the movement of the pawls is also reversed, the one which first engages the ratchet-wheel being now idle, while the other engages and moves the ratchet-wheel in the same direction. Thus a continuous movement of the ratchet-wheel is obtained when the lever is moved in either direction. The amount of advance of the head-block standard or knee upon the slides by the movement of the lever is regulated by means of pins *q* in the quadrant *Q*, bolted to the main frame *H*. Pin-holes are drilled and spaced in the quadrant to suit the cut required, and by placing the pins in different holes the movement of the lever between them may be varied. When the log has been sawed and it is required to move the standard back, the pawls are disengaged by means of the levers *N*, operated by the lever *O*, and the block is run back by the hand-wheel *R*, keyed to the end of the screw, or by friction. The lever *O* is held up by means of a catch on the frame *H*. It is obvious that two or more head-blocks can be moved simultaneously by being connected to the head-block to which the set-works are attached with gears and shafts of any desired length.

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

1. In saw-mill set-works, the combination of the standard or knee sliding in the main frame, a nut carried by the standard or knee and having a sliding movement therein, a main operating-screw working in the nut, and a screw set loosely in the nut and working in a nut fixed in the standard or knee, whereby said standard or knee may have an adjustment

independent of the primary adjustment received through the main screw, substantially as herein described.

2. In saw-mill set-works, the combination of a standard or knee sliding in the main frame, a nut carried by said standard or knee and having a sliding movement therein, a main operating-screw working in the nut, a supplementary screw set loosely in the nut and working in a nut fixed in the standard or knee, a ratchet keyed on the independent screw, and a lever and pawl engaging the ratchet, whereby said independent screw is operated and the standard or knee given an adjustment independent of the primary adjustment received through the main operating screw, substantially as herein described.

3. In saw-mill set-works, the sliding standard or knee and the screw by which it is adjusted, in combination with the means for operating the screw, consisting of the ratchet-wheel keyed on the screw, the radial arms pivoted loosely on the hub of the ratchet, and the alternately-operating pawls carried by said arms and having projections on their sides, the pivoted lever and the links connecting the lever with the pawl-carrying arms, and the means for disengaging said pawls, consisting of the pivoted levers *N*, operating against the projections on the side of the pawls, and the pivoted operating-lever *O*, connected with the disengaging-levers by the pins and links, substantially as herein described.

In witness whereof I have hereunto set my hand.

WILLIAM A. CAMPBELL.

Witnesses:

G. ROSENBLATT,  
J. M. ARTHUR.