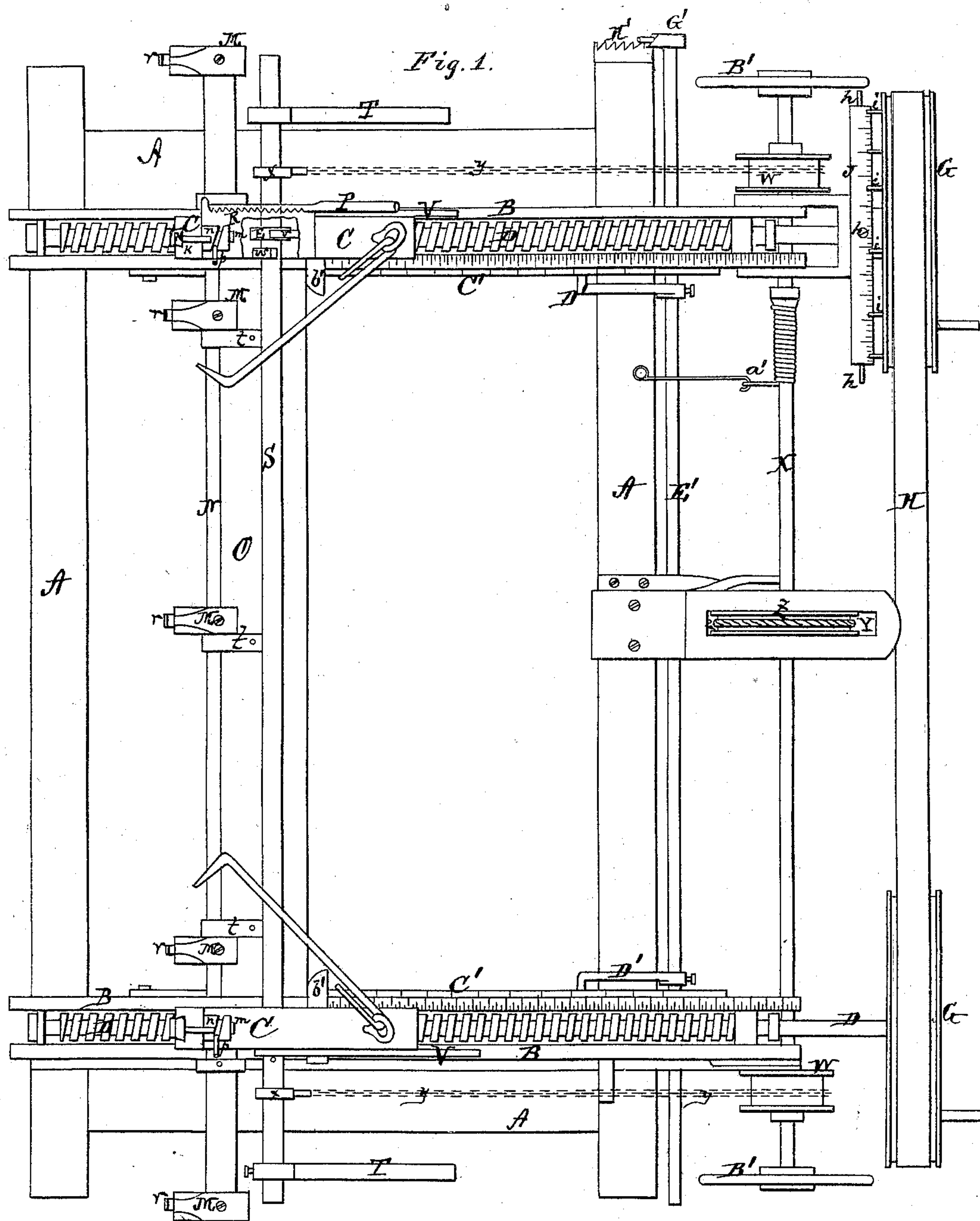


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## Improvement in Circular Saw-Mills.

No. 127,062.

Patented May 21, 1872.



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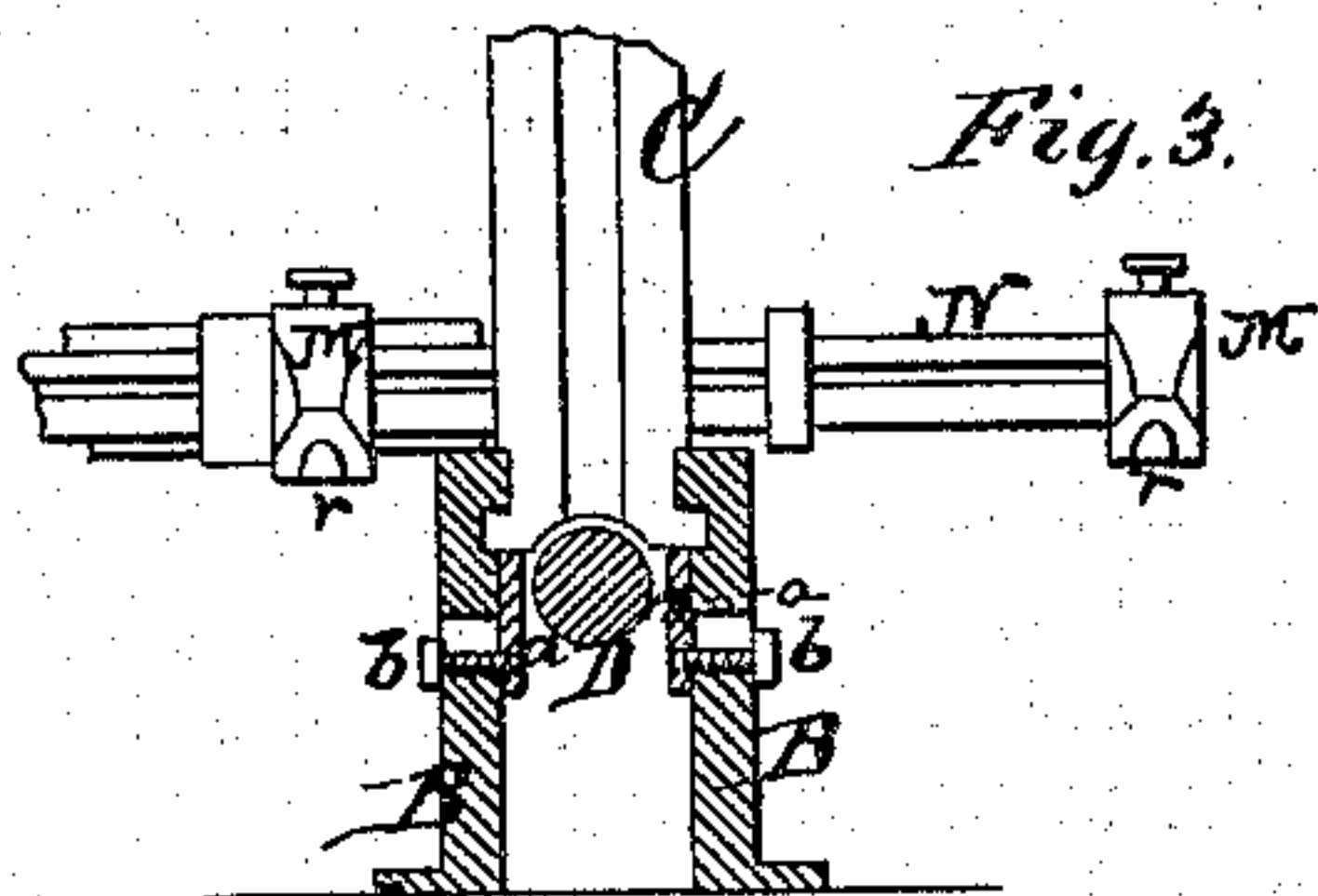
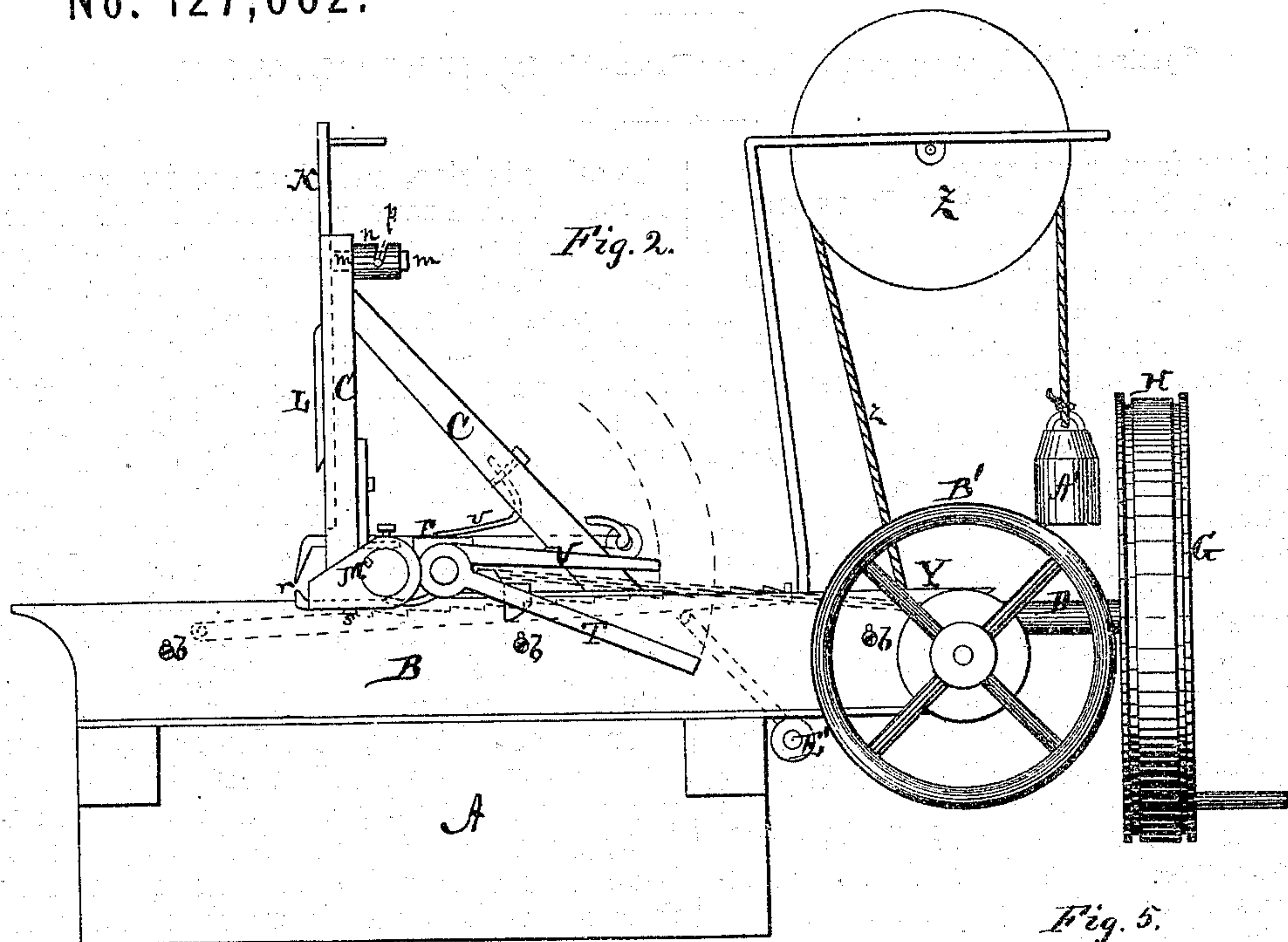


Fig. 4.

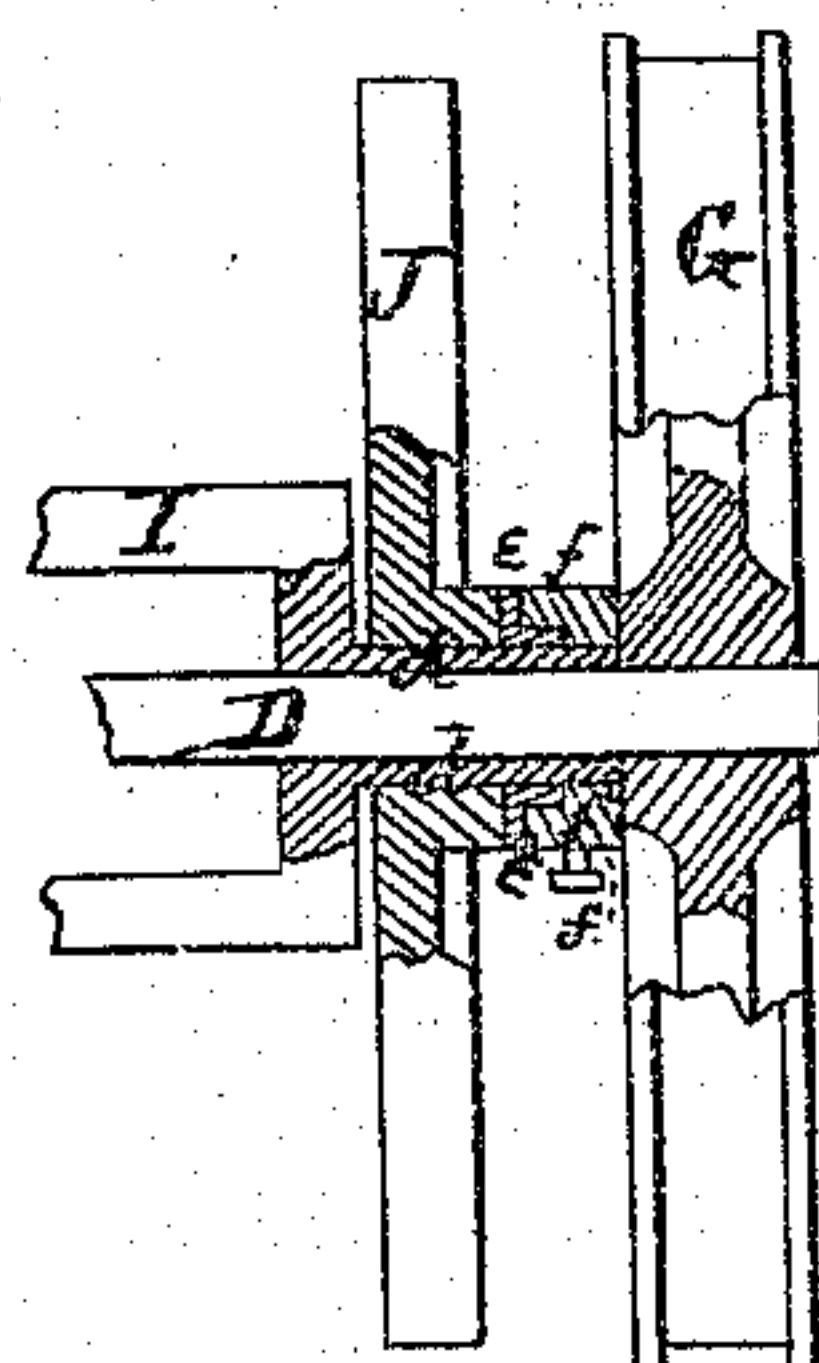
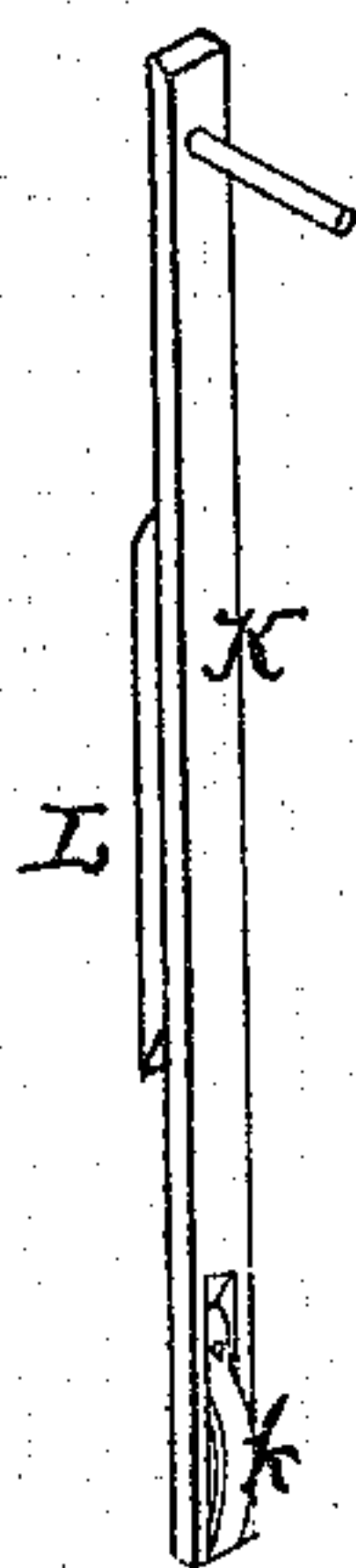


Fig. 6.

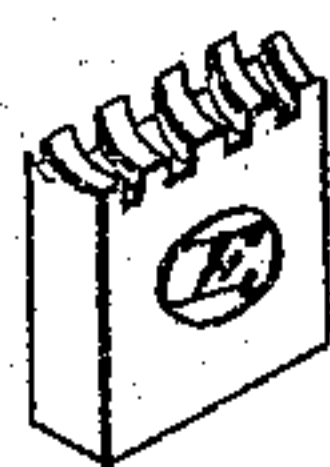
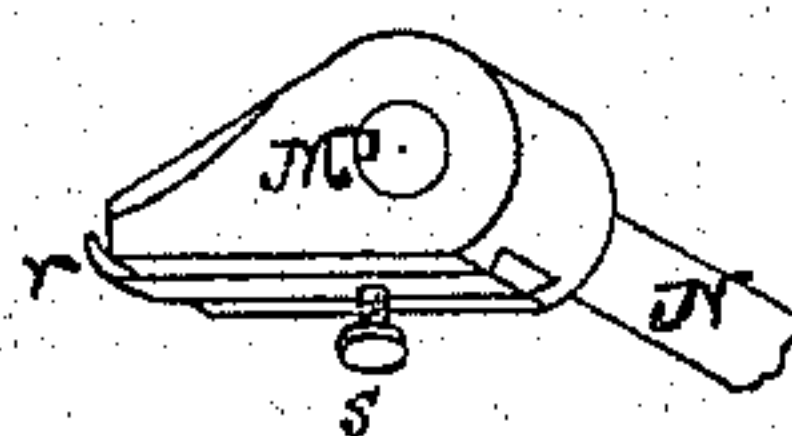


Fig. 7.



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# UNITED STATES PATENT OFFICE.

NELSON JOHNSON, OF JASPER, NEW YORK.

## IMPROVEMENT IN SAW-MILLS.

Specification forming part of Letters Patent No. 127,062, dated May 21, 1872.

*To all to whom it may concern:*

Be it known that I, NELSON JOHNSON, of Jasper, in the county of Steuben and in the State of New York, have invented certain new and useful Improvements in Saw-Mills; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of the "set-works" for a saw-mill, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation of my set-works. Figs. 3 to 7 are detached views of various parts of the same, to be hereinafter described.

A represents the frame-work of the movable carriage common to all saw-mills. Upon this carriage are firmly secured the two head-blocks B B. C C represent the standards or brackets, placed one upon each head-block B, and resting and moving upon strips *a a* on the interior of the head-block, said strips forming guides or ways upon which the brackets are moved back and forth. The strips are adjustable up and down, and held in place by means of set-screws *b b*, which pass through vertical slots in the sides of the head-block, as shown in Fig. 3. Through each head-block B passes longitudinally a screw-shaft, D, having suitable bearings at each end of the head-block, and in each bracket C is a movable half-nut, E, represented in Fig. 6, which, when dropped down, gears with the screw-shaft D, so that when said screw-shaft is turned the bracket is moved either back or forth. By the movement of the bracket back and forth the adjoining sliding surfaces will naturally wear more or less, and to compensate for this the guides or ways *a a* are made movable, as above described, so that they can be raised at will and keep the joint tight, preventing the brackets from wobbling. Upon the rear end of each screw-shaft D is a wheel, G, and the two wheels are connected by a belt, H, so that when one is turned

the other is also, and thus the two screws are revolved simultaneously, so as to feed or move the two brackets C C exactly the same distance. The rear end of one of the screw-shafts D is passed through a sleeve, *d*, formed upon a stirrup, I, attached to the end of the head-block, and the wheel G is placed on said shaft close up to the outer end of the sleeve, as shown in Fig. 5. On the sleeve *d* is placed a wheel, J, and outside of the same, also on the sleeve, is a rubber washer, *e*, and a metal collar, *f*, the rubber washer being held by the metal collar, and bearing against the hub of the wheel J. The object of the rubber washer is to produce sufficient friction to hold the wheel J in any position in which it may have been placed. The wheel J is graduated on its outer circumference, forming a dial, and provided, at ninety degrees' intervals, with projecting pins *h h*, one of which has a knob or head, as shown in Fig. 1. Along the circumference of the wheel G, on the inner side, at forty-five degrees' intervals, are pins *i i*, projecting inwardly over the graduated rim of the wheel J. The object of these attachments is that the operator may be enabled to set the log at the exact point where he may want it. In a full-sized machine one revolution of the wheels G, and, consequently, of the screw-shafts D, is intended to move the brackets just one inch; and hence, by the use of the dial J and points *i i*, the operator can always move them as much or little as he may desire, in all cases making allowance for the thickness of the saw. One of the pins *h* on the dial J being headed, he can always tell, by using this at the starting-point, how far to turn the wheel G to cut the desired thickness of board. The top or upper sides of the head-blocks B are also graduated, as shown in Fig. 1, to correspond exactly with the revolutions of the screw-shafts, each revolution showing upon the head-blocks that the brackets have been moved one inch, and so on. The front side of the vertical part of each bracket C has a dovetailed vertical groove for the reception of a correspondingly shaped bar, K, which is, upon its front side, provided with a dog, L, and upon its rear or inner side with a spring, *k*, said spring bearing against the bottom of the groove and holding the bar at any height it may be placed, preventing it from falling down of its own



weight. These are used to dog the stock on the top, when placed on the head-blocks B B, against the brackets C C, by pushing the bars K K down till the dogs L L enter the stock. The bars are then held, each by a horizontal bolt, *m*, passing through the bracket near its upper end, and through a socket, *n*, attached to the rear side of said bracket. The socket *n* is slotted diagonally or eccentrically, and a lever, *p*, attached to the bolt *m*, passes through said slot, so that by turning said lever the bolt will be moved either outwardly to press against and hold the bar K, or inwardly to release the same. The lower side of the stock is dogged or held by dogs *r r*, sliding in dove-tailed grooves on arms M M attached to a shaft, N. The dogs *r* may be moved out or in as occasion may require, and are each held in its arm in the desired position by means of a set-screw, *s*, as shown in Fig. 7. The arms M M are attached at suitable intervals by set-screws to the shaft N, which rests in suitable bearings or binders *t t*, attached to a head or rest, O, connecting the two brackets C C together. This shaft is, near one end, provided with a lever, P, which has a suitable projection to catch on a ratchet-bar, R, attached to one of the brackets, and thereby hold the shaft and dogs in the desired position.

The half-nuts E E, above mentioned, are held down on the screw-shafts D D by means of springs *v v*, as shown in Fig. 2, and a shaft, S, passes through both of said nuts, with a lever, T, attached to each end of the shaft. Upon this shaft, on the inner side of each nut, is an eccentric, *w*, so that by raising either one of the levers T the shaft will be turned and the eccentrics operate to raise the shaft and, consequently, lift the nuts up from the screws. Upon the shaft S, on the outside of each bracket C, is also placed a lever, V. These levers are, however, loose on the shaft, and their inner ends shaped eccentrically, so that by turning either of said levers upward this end of the shaft will be raised only, lifting this nut up from the screw without disturbing the nut at the other end. This is especially advantageous when desired to cut lumber of unequal thickness. Near each end of the shaft S is a loose collar, *x*, from which a chain, *y*, passes to and around a pulley, W, on a shaft, X, situated at the rear end of the machine, under the head-blocks. On this shaft X is also a pulley, Y, from which a cord, *z*, passes over an elevated pulley, Z, and attached to a weight, A'. As the screw-shafts D D feed the brackets C C forward the chains *y y* turn the shaft X so that the cord *z* will be wound upon the pulley Y, raising the weight A'. Now, as soon as the nuts E E are lifted from the screws D D, the weight A' will turn the shaft X in the opposite direction, winding up the

chains *y y* on the pulleys W, and draw the brackets back.

Hand-wheels B' are attached, one to each end of the shaft X, so as to turn the log back by hand; and a spring, *a'*, may be arranged to act separately or in conjunction with the weight A' for the same purpose.

The brackets C C may be stopped in their backward movement, at any point desired, by means of two toothed bars, C' C', pivoted one on the inner side of each head-block, and raised by means of arms D' D' on a shaft, E', projections *b' b'* on the brackets striking against the toothed bars. Upon one end of the shaft E' is a lever, G', held at any point by a ratched standard, H', so as to hold the arms D' D' at any point desired or necessary to sustain the toothed bars C' at the required point to stop the brackets just at the required distance from the saw.

The bars C' have a tooth for every two inches, to stop the brackets at any or even every inch.

The binders *t t* on the rest O effectually prevent the springing of the rest, which is often the case without them.

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

1. In head-blocks for saw-mills, adjustable guides or ways *a a* upon which the brackets move, said guides or ways being held by set-screws *b b* passing through slots in the head-blocks, all substantially as and for the purposes herein set forth.

2. In combination with the screw-shafts D D and wheels G G connected by a belt, H, the dial J provided with pins *h h* and the points *i i*, all constructed and arranged substantially as and for the purposes herein set forth.

3. The combination of the stirrup I provided with sleeve *d*, dial J, rubber washer *e*, and metal collar *f*, all substantially as and for the purposes herein set forth.

4. In combination with the bracket C and dog K L, the bolt *m*, eccentrically-slotted socket *n*, and lever *p*, all constructed and arranged substantially as and for the purposes herein set forth.

5. The shaft S provided with levers T T, eccentrics *w w*, and loose eccentric levers V V, all constructed and arranged, as described, in combination with the nuts E E, springs *v v*, screw-shafts D D, and standards C C, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of March, 1872.

NELSON JOHNSON.

Witnesses:

C. L. EVERT,  
A. N. MARR.