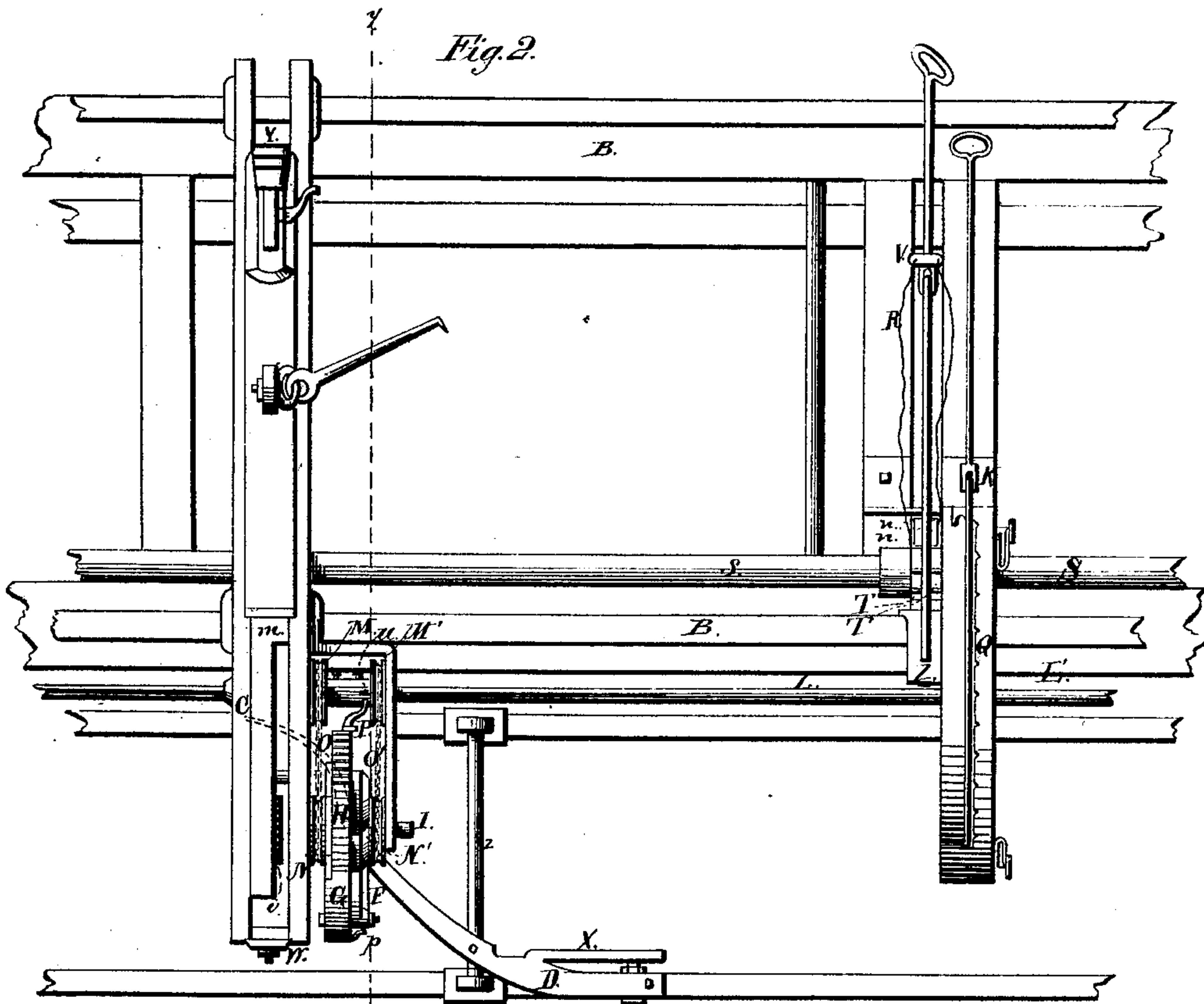
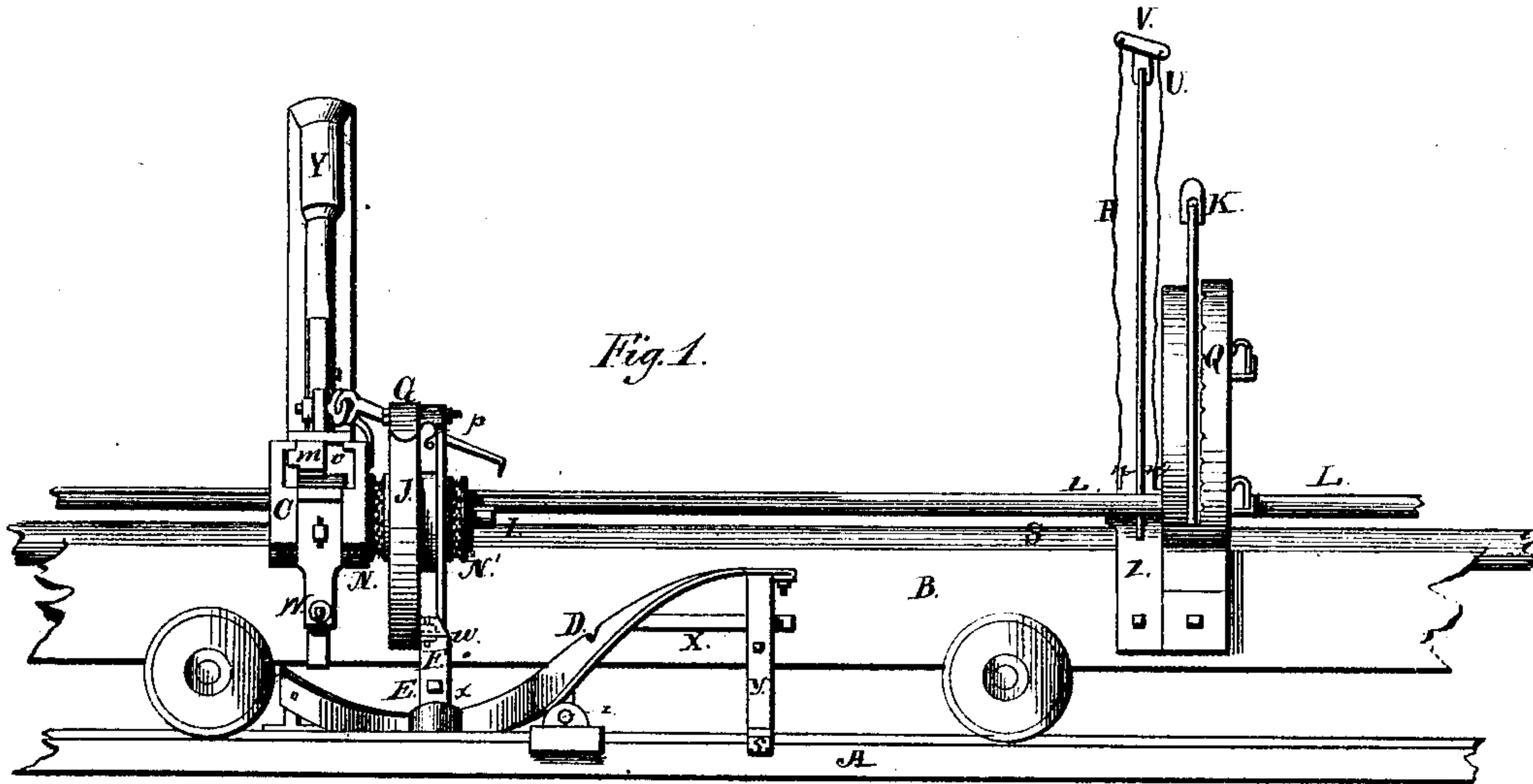


R. M. BIGGER.

SAW-MILL CARRIAGE AND HEAD-BLOCK.

No. 183,745.

Patented Oct. 31, 1876.



Attest:  
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J. M. Everett

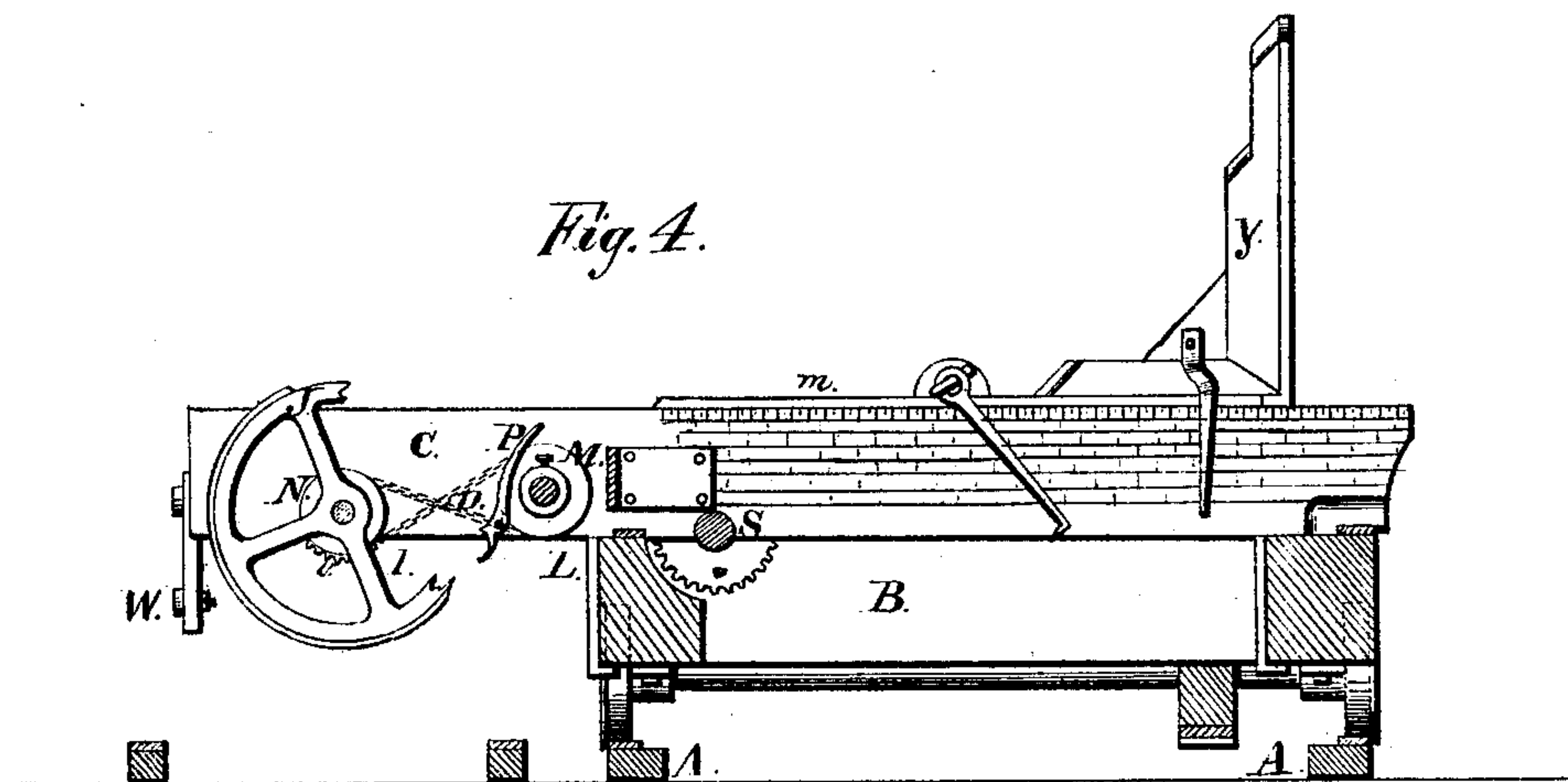
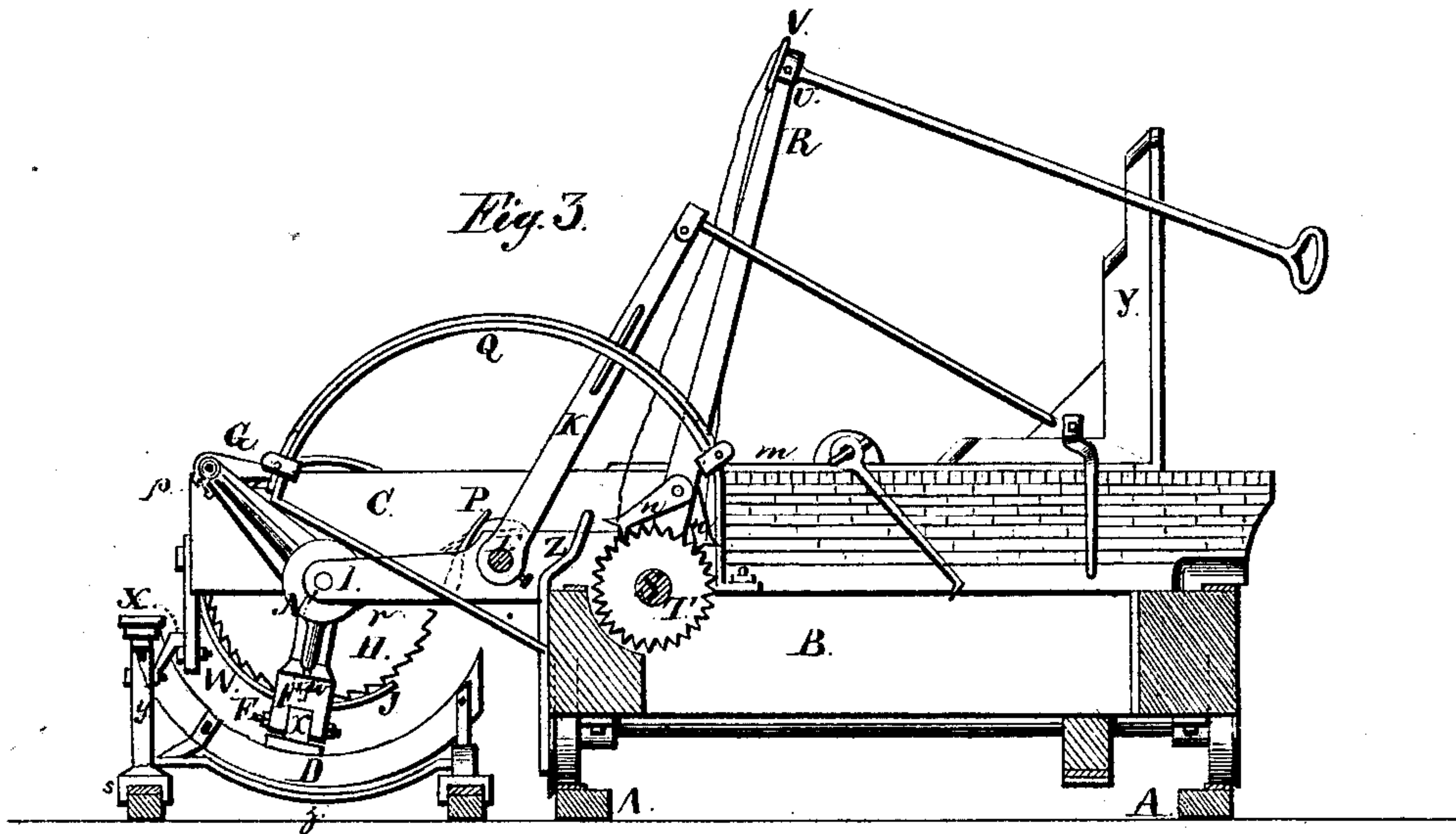
Inventor:  
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# UNITED STATES PATENT OFFICE.

ROBERT M. BIGGER, OF LAIRDSVILLE, PENNSYLVANIA.

## IMPROVEMENT IN SAW-MILL CARRIAGES AND HEAD-BLOCKS.

Specification forming part of Letters Patent No. 183,745, dated October 31, 1876; application filed October 28, 1875.

*To all whom it may concern:*

Be it known that I, ROBERT M. BIGGER, of Lairdsville, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Saw-Mill Carriages and Head-Blocks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The nature of my invention consists in the construction and arrangement of a saw-mill carriage and head-blocks, to the end that the same may be reacting and self-setting, and to the end that greater accuracy may be secured in setting than can be had by hand.

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 drawings, in which—

Figure 1 is a side elevation of the carriage, presenting an end view of head-block. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a section of carriage, showing side elevation of head-block. Fig. 4 is section of Fig. 2 to the left of line 7 8, omitting large ratchet-wheel H, arm-lever F, and pawl G, for the purpose of showing register J and pawl P.

But one head-block is shown in drawings, the other being substantially the same.

A is the track, upon which stands the carriage B. C C are head-blocks. D D are inclined worms, which rest upon rock-shafts *z z*, and are supported at the forward extremities by the perpendicular movable bars *y y*, which rest in and upon the pedestals *s s*. E E are rollers, which are attached to angular arm-levers F F by knuckle-joints *x x*. In arm-levers F F are secret wheels *w w*, as shown by dotted lines in arm-levers. G G are pawls attached to the upper ends of arm-levers F F. The action of the pawls G G is insured by the springs *p p*, or their equivalents. H H are ratchet-wheels, fixed on shafts I I. On shafts I I are pinions *v v*. J J are registers, which turn on shafts I I, alongside and projecting over the ratchet-wheels H H. K is a lever, which is fixed upon shafts L L'. M M' M M' are pulleys fixed upon the shafts L L'. N N'

N N' are pulleys, which turn on shafts I I on each side of registers J J. The pulleys N N are attached to the registers J J. On pulleys M' M' are pins *u u*. On pulleys N' N' are pins *r r*. O O' O O' are chains, or their equivalents, which run upon the pulleys M N M' N', and thereby connect them. P P are pawls resting upon or lying near to the ratchet-wheels H H. Q is a graduated register standing alongside of the lever K. R is a lever, which turns on shafts S S. On shafts S S are pinions *o o*. T T' are ratchet-wheels, fixed to the shafts S S upon each side of the lever R. Upon the lever R are reversible dogs *n n'*. At U, upon the lever R, is movable cross-head V, each end of which is attached to the reversible dogs *n n'* by means of chains, or their equivalents. W W are rollers extended from the head-blocks C C. X X are guards projecting from the inclined worms D D. Y Y are standards fixed to the racks *m m*, which run in the head-blocks C C. Z is a rest for the support of the lever R and the dogs *n n'*.

The shafts L L' and S S are to be constructed with key-seats, in order that the head-blocks C C may be placed nearer together or farther apart, as may be desired. The inclined worms D D are mounted upon pedestals, and may be shifted to correspond with the position of the head-blocks. The lever K is fixed to the shafts L L' by means of set-screws, in order that it may be set backward and forward upon the shafts, thus taking up lost motion, if any there be. The head-blocks C C are provided with numerical tables, which are used in connection with the graduated register Q. It will be seen that the amount of motion given to the register J by lever K is indicated by register Q.

The operation of my apparatus is as follows: The carriage B, being in position upon the rear end of the track A, and the reversible dogs *n n'* being elevated upon the rest Z, with the free ends toward the operator, the dogs are reversed, by an upward and downward motion of the movable cross-head V, and the lever R drawn toward the operator until the dogs *n n'* fall off of the rest Z and into the ratchet-wheels T T'. The operator then presses from him upon the lever R, when a backward motion is given to the standards Y Y by means



of racks *m m* and pinions *o o*, which is continued until the standards have been run back as far as may be desired, when the timber is secured upon the head-blocks and against the standards in the usual manner. The lever *K* is then drawn toward the operator until it reaches any desired notch in the register *Q*, according to the thickness of lumber desired. The motion given to the lever *K* is imparted to the registers *J J*, and in an opposite direction, by means of the chains *O O*, or their equivalents. The chains are prevented from slipping by means of iron pins passed through the chains and into the pulleys *M M* and *N N*. Power is then applied to the carriage *B*, and a forward motion given it. The rollers *E E*, coming in contact with the inclined worms *D D*, will follow them and rise upon them to their ends, when the rollers fall off and down until the arm-levers *F F* rest upon the pins *r* in pulleys *N' N'*. As the rollers *E E* rise upon the inclined worms *D D* a forward motion is given to the upper ends of the arm-levers *F F*, which causes the pawls *G G* to follow the registers *J J* to their ends, when the pawls fall into the ratchet-wheels *H H* and move them forward, while the rollers *E E* continue to rise upon the inclined worms. The motion given to the ratchet-wheels *H H* is imparted to the standards *Y Y* by means of the pinions *v v* running in the racks *m m*. As the ratchet-wheels *H H* move forward the pawls *P P* rest upon them without interfering with the forward motion, but providing against any backward motion by falling into the notches in the wheels. When the timber has been carried past the saw the carriage is to be returned to its original position. It will be seen that on their return the rollers *E E* cross the inclined worms *D D* by means of the knuckle-joints *x x*, at the points at which they come in contact with the inclined worms when the carriage was moving toward the saw.

If the operator desires to put the apparatus out of gear, he will press upon the lever *K* in the direction of the inclined worms, until the lever rests in the extremity of the register *Q*. It will be seen that the registers *J J* have been carried forward until the pawls *G G* cannot reach the ratchet-wheels *H H*, and that the pawls *P P* have been withdrawn from the ratchet-wheels *H H* by means of pins *u u*.

If the carriage should pass over any small

obstruction while moving toward the saw, any failure or irregularity in setting is provided against by the rollers *W W* coming in contact with the guards *X X*, and carrying the inclined worms *D D* up with the carriage.

In cutting tapered lumber, one standard is drawn forward, after the self-set has acted, by means of lever *R*, one reversible dog having been raised out of its ratchet-wheel by elevating the end of the movable cross-head to which it is attached.

It is obvious that the apparatus hereinbefore described may be adapted to the lightest character of veneer-sawing, as well as that of the heavier and heaviest lumber, and that it may also be adapted to a muley-saw carriage as well as to a circular-saw.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The combination of lever *K*, shaft *L*, register *Q*, pulley *M*, pulley *N*, chain *O*, and register *J*, substantially as described, and for the purposes set forth.

2. The combination of lever *K*, with shaft *L*, pulley *M'*, pulley *N'*, chain *O'*, pin *r*, and angular arm-lever *F*, substantially as described, and for the purposes set forth.

3. The combination of lever *K*, with shaft *L*, pin *u*, and pawl *P*, substantially as described, and for the purposes set forth.

4. The combination of lever *K*, with shaft *L*, pin *u*, pawl *P*, and ratchet-wheel *H*, substantially as described, and for the purposes set forth.

5. The combination of inclined worm *D*, with roller *E*, arm-lever *F*, pawl *G*, register *J*, ratchet-wheel *H*, shaft *I*, pinion *v*, and standard-rack *m*, substantially as described, and for the purposes set forth.

6. The combination of pin *r*, and its operative devices, with arm-lever *F*, knuckle-joint *x*, and roller *E*, and inclined worm *D*, substantially as described, and for the purposes set forth.

7. The combination of inclined worm *D*, with rock-shaft *z*, roller *W*, guard *X*, roller *E*, arm-lever *F*, pawl *G*, and ratchet-wheel *H*, substantially as described, and for the purposes set forth.

ROBERT M. BIGGER.

Witnesses:

SAML. H. WALLIS,  
F. M. EVERETT.