(No Model.) 3 Sheets—Sheet 1.

I. SWANK.

HEAD BLOCK FOR SAW MILLS.

No. 383,600. Patented May 29, 1888.

Fig. 1.

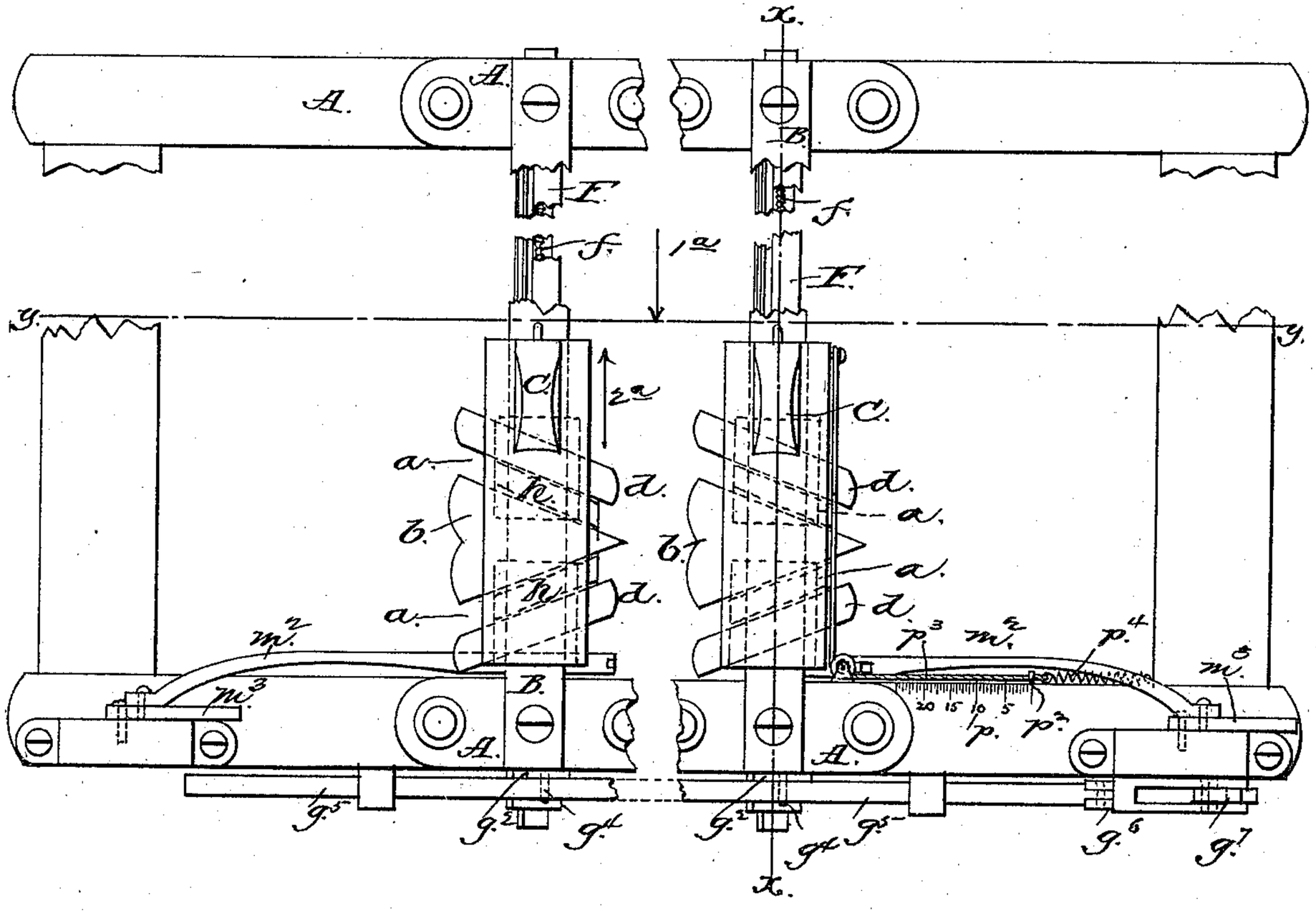
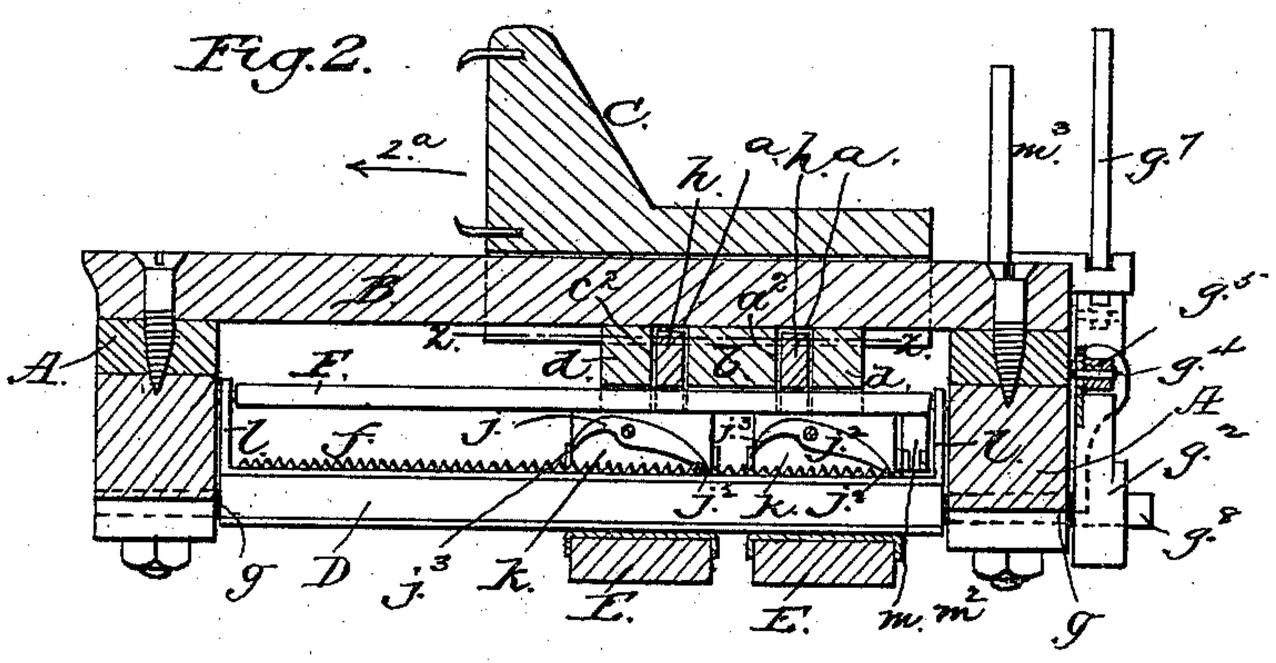


Fig. 2.



WITNESSES:

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ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

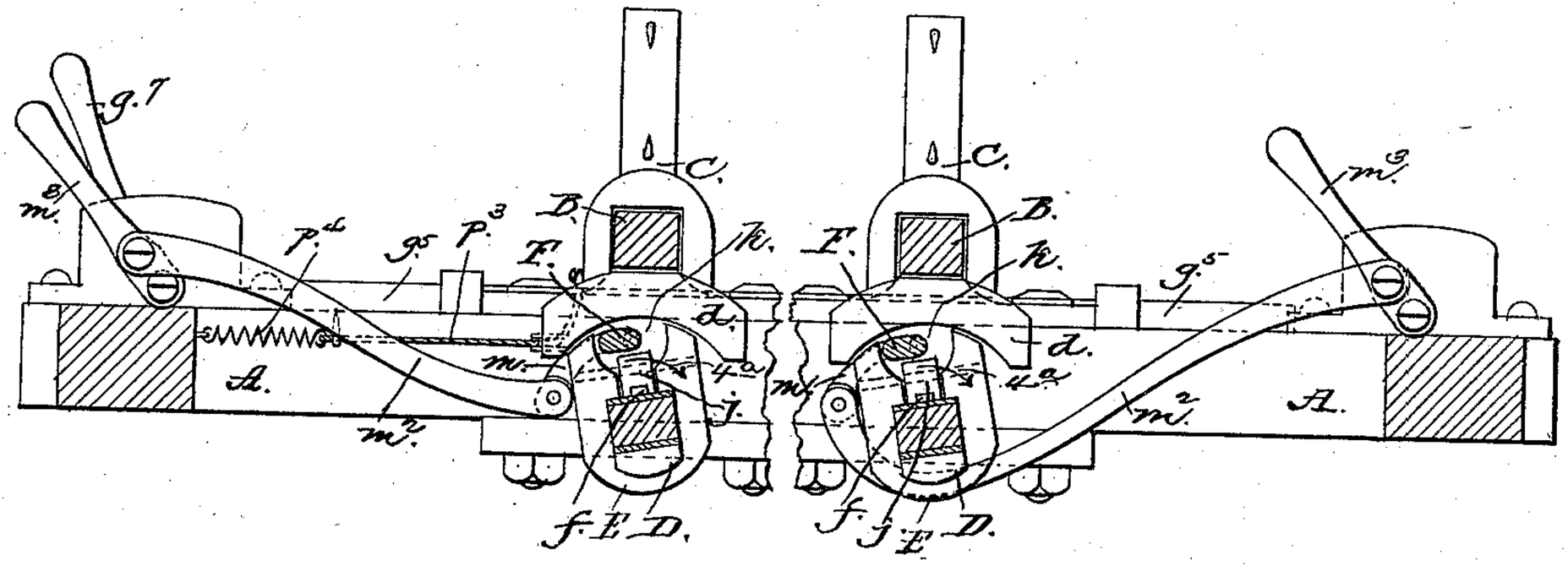
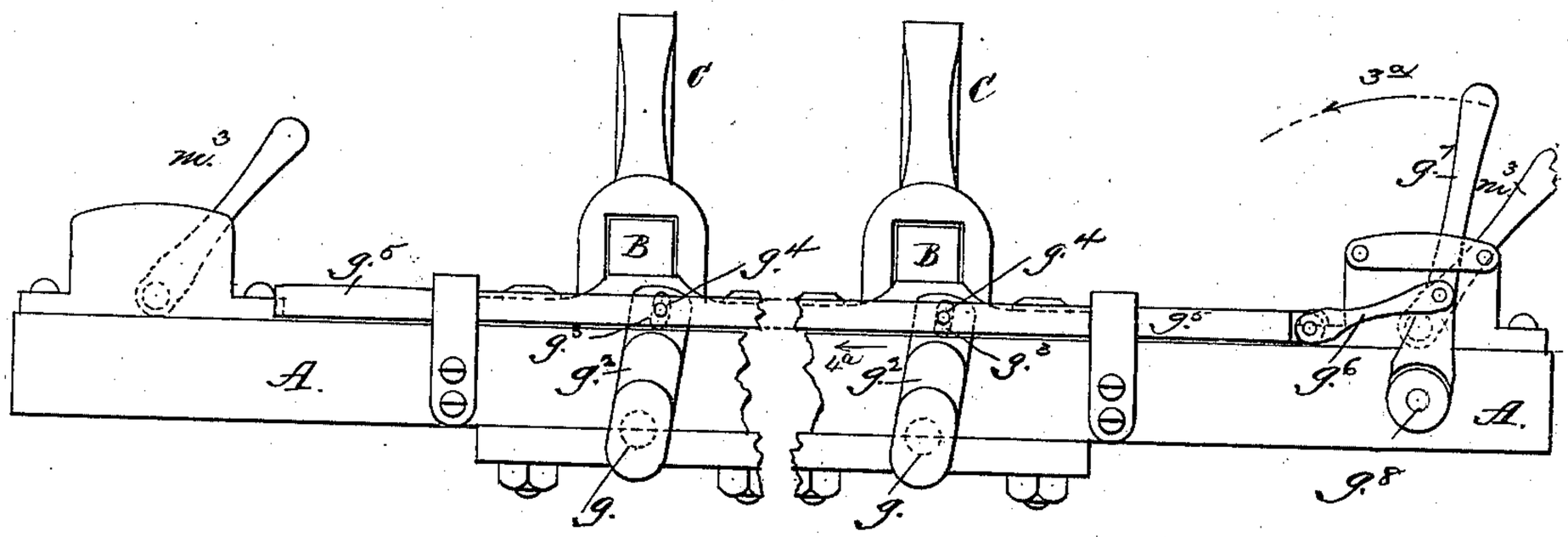


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 5.

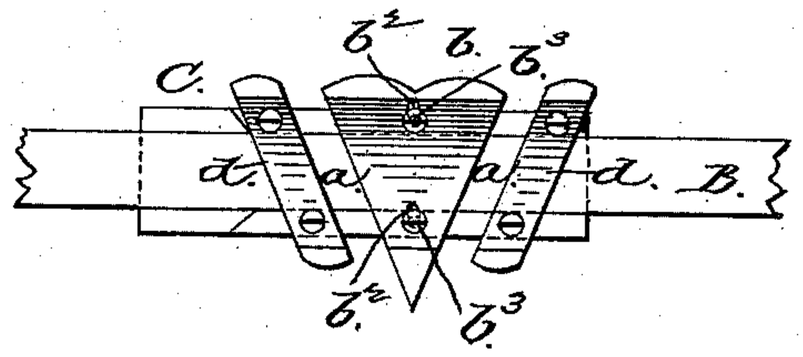


Fig. 6.

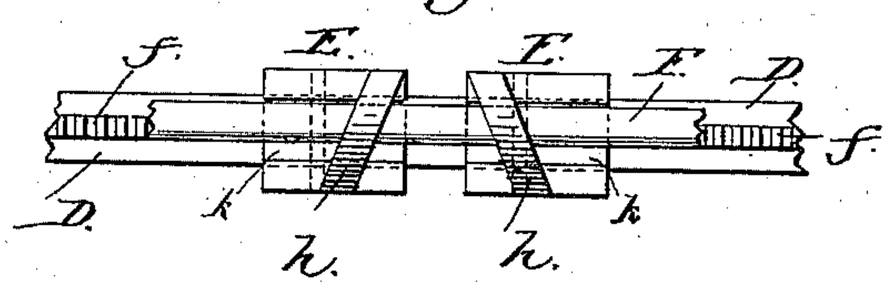


Fig. 7.

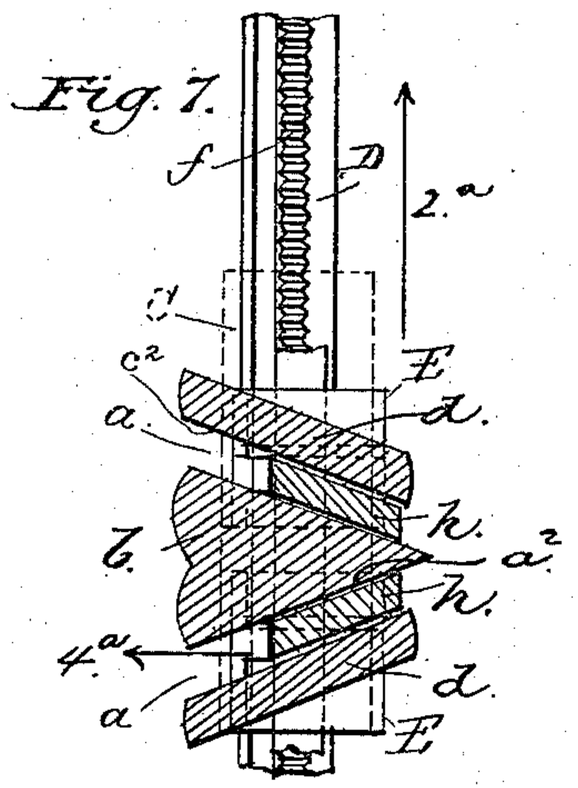
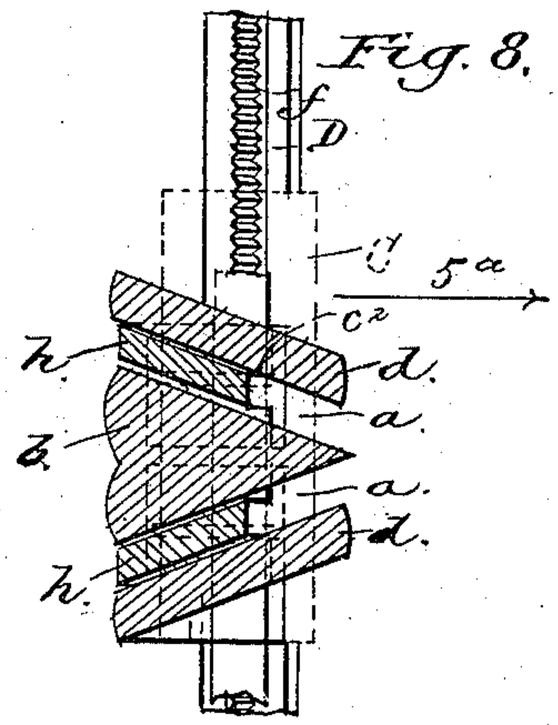


Fig. 8.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

IRWIN SWANK, OF PARIS, ILLINOIS.

HEAD-BLOCK FOR SAW-MILLS.

SPECIFICATION forming part of Letters Patent No. 383,600, dated May 29, 1888.

Application filed December 16, 1887. Serial No. 258,048. (No model.)

To all whom it may concern:

Be it known that I, IRWIN SWANK, of Paris, in the county of Edgar and State of Illinois, have invented a new and Improved Head-Block for Saw-Mills, of which the following is a full, clear, and exact description.

This invention relates to head-blocks for saw-mills; and it consists in the novel constructions and combinations of parts, all substantially as will be hereinafter more fully described, and set forth in the claims, whereby increased efficiency in machinery of this class is secured.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of both ends of a saw-mill carriage with similarly-constructed head-blocks thereon, the intermediate portion of the carriage being broken away. Fig. 2 is a vertical cross-section on line *x x*, Fig. 1 Fig. 3 is a vertical longitudinal section on line *y y*, Fig. 1, the view being taken in the direction of the arrow 1ª. Fig. 4 is a side elevation of Fig. 1. Fig. 5 is an inverted plan view of the under side of one of the traveler-knees. Fig. 6 is a plan view of the pawl-carrying and knee-actuating blocks; and Figs. 7 and 8 are horizontal sections on line *z z*, Fig. 2, with certain parts shown in different positions, to be hereinafter particularly referred to.

In the drawings, A A represent the longitudinal head-block beams or portions of a saw-mill carriage at each end thereof, across and upon which rest the transverse head-block rails B, secured thereto, upon which the knee C travels. The knee on its under side and below the rail B is provided with two angularly-arranged cam-grooves, *a a*, which in the present instance are shown as formed by and between the edges of the triangular block *b* and the obliquely-arranged blocks or strips *d d*.

Below the line of travel of the knee is a rocker or oscillating bar, D, having a longitudinal toothed rack, *f*, on its upper edge, said rocker-bar being suitably journaled in bearings *g* of the head-block frame A, and provided at one journal with a crank-arm, g^2, its upper end being slotted, as at g^3, with which slot engages a pin, g^4, of a connecting-rod, g^5, suitably guided, to the outer end of which connecting-bar is hung a link, g^6, which, by its other end, is pivoted to an intermediate portion of a lever, g^7, pivoted to the frame, as at g^8.

Upon and embracing the rocker-bar D are two separate blocks, E E, provided with upwardly-extending tongues *h h*, angularly arranged thereon in relation to each other and to the cam-slots *a a* in the traveling knee for an engagement with said cam-slots, and below said tongue the said blocks are slotted, as at *k*, within which slots are suitably disposed and pivoted double-nosed pawls *j j*, adapted for engagement by their either ends, as desired, with the rack on the rocker-bar. These pawls, as shown, are formed with a forward curved shorter end, j^3, and longer rearward weighted end, j^2, so they will rest with their rearward noses in the racks; but by means of a tilting bar, F, peculiarly formed in cross-section and ranging above the curved ends of said pawls, they may be made to stand so that neither end thereof will engage the rack, or, when desired, in a manner to throw their forward noses, j^3, instead of their rearward noses, j^2, into engagement with the rack. This tilting bar F for each head-block extends longitudinally above and parallal with the rocker-shaft D, and is pivota'ly hung in ear-pieces *l* thereof, being provided with a crank-arm, *m*, which, by link m^2, is connected with a lever, m^3, pivoted on the frame A, whereby on a proper throw of said lever m^3 the bar F may be tilted to a proper relation with or bearing on the pawls, to secure the engagement by their either end, as desired, with the rack, or to so swing them that neither end will be in engagement.

As seen in Fig. 5, the wedge-shaped block *b* on the under side of the knee is adjustably secured thereon by the headed screws b^3, passing through slots b^2 in the block, whereby compensation may be made for any wear of the edges of the cam-grooves.

A suitably-graduated scale, *p*, is placed on one of the side beams of the head-block frame A, and an index-pointer, p^2, is arranged and suitably guided in relation thereto, and is moved accordingly as the knee travels, being connected to the knee by a wire rope or other

flexible connection, p^3, and a spring, p^4, or weight, being suitably applied, will draw the index back as the knee retraces. When it is in the position shown in Figs. 1, 2, and 7, and it is desired to secure a travel of the knee across the head-block in the direction of the arrow 2^a, the pawls $j\,j$ are set for engagement by their rear ends, j^2, (see Fig. 2,) the oscillating shaft D is so tilted as to place the tongues at the end portions of the cam-grooves $a\,a$, as shown in Figs. 4 and 7, and the lever g^7 is swung in direction of the arrow 3^a, Fig. 4, whereupon said bar D will be tilted in the direction of the arrow 4^a, Figs. 4 and 7, and the tongues h of the rearmost block, E, (*i. e.*, rearmost as to the desired line of travel,) will act upon the edge a^2 of the wedge-piece b, forcing the knee forward a distance determined by the angle of the cam-groove, and the forward inclined face of the wedge-piece b at the same time forces the advance pawl-block by its tongue forward. With the tongues then swung into and occupying positions in the cam-grooves of the knee, as shown in Fig. 8, on a tilt of the bar D in the opposite direction, as indicated by the arrow a^5, the tongue of the forward block is moved with its forward edge against the forward edge, c^2, of the advance cam-groove a similar distance as before, and at the same time the rear edge of the rear inclined cam-slot acts upon the tongue of the rear pawl-block to again carry it forward into the position in relation to the cam-slot as seen in Fig. 1, and so on for each oscillation of the rocker-bar, the rear and forward pawl-carrying blocks alternately operating on the cam-grooved knee to force the same forward, it being understood that the pawls, when set with their rear ends for engagement, permit of a forward movement of the carrying-blocks when the inclined edges of the cam-grooves exert a pressure thereon in a forward direction, but that any backward movement of or by such blocks is prevented by said so-adjusted pawls. On the other hand, on an adjustment of the pawls through the tilting bar F to engage by their forward ends, j^3, with the rack, on an oscillation of the bar D, as before described, the blocks and knee will be moved backward step by step, any forward movement thereof being prevented by the said pawls adjusted as last described; and it will be seen that with connecting-bar g extending to the farther end of the carriage and connecting with the rocker-shaft D of the farther head-block the shafts D D of both head-blocks may be similarly and simultaneously rocked to secure a travel of its respective knee, and it will also be seen that under certain adjustments of the pawls, as desired, the knees may be caused to move forward in unison, or that one only may be moved forward, the other remaining stationary, or that while the knee at one head-block is caused to move forward the knee at the other head-block may be moved backwardly, the advantages of all of which will be readily understood as applicable in the sawing of slab sides, tapering boards or planks, and the turning or rolling of logs on the knees therefor.

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

1. The combination, with a suitably-guided part provided with angularly-arranged grooves $a\,a$, of a rocker-bar having a rack, blocks adapted to slide thereon, provided with projections engaging said grooves and having pawls adapted to engage said rack, and a means for oscillating said racked bar, substantially as and for the purpose described.

2. The combination, with a suitably-guided part provided with angularly-arranged grooves $a\,a$, of a suitably-journaled rocker-bar having a rack and provided with a crank-arm, a lever and connection between said crank-arm and lever, and blocks adapted to slide on said rocker-bar, provided with projections engaging said grooves and having pawls, substantially as and for the purpose described.

3. The combination, with a suitably-guided part provided with angularly-arranged grooves $a\,a$, of a rocker-bar having a rack, blocks adapted to slide thereon, provided with projections engaging said grooves, and having pawls pivoted therein and adapted to engage said rack-teeth, a tilting bar journaled on said rocker-shaft and bearing on said pawls, and means for securing an oscillation of said bar, substantially as and for the purpose described.

4. The combination, with a head-block knee provided with angularly-arranged grooves $a\,a$, of a suitably-journaled rocker-bar, D, having a rack and provided with crank-arm g^2, a bar, F, journaled on said rocker-shaft, provided with a crank-arm, m, blocks E E, adapted to slide on said rocker-bar, provided with projections h, engaging said grooves and having pawls $j\,j$, pivoted levers g^7 and m^3, and connections between said levers and said crank-arms g^2 and m, respectively, all substantially as and for the purpose described.

5. The combination, with a head-block knee provided with angularly-arranged cam-grooves $a\,a$, of a rocker-bar having a rack, the bar F, journaled thereon, the blocks E E, adapted to slide on said bar and provided with projections h, engaging said grooves, double-nosed pawls pivoted in said blocks, and means for oscillating said bar F, substantially as and for the purpose described.

6. The combination, with a head-block knee provided with the triangular-shaped block b, having a slot, b^2, and set-screw, and the angularly-arranged strips $d\,d$, of a rocker-bar having a rack, blocks E E, adapted to slide on said bar, provided with projections engaging said grooves, pawls adapted to engage said rack, and means for oscillating said rocker-bar, substantially as and for the purpose described.

7. In a head-block for a saw-mill, the combination, with the cross-bar B and the knee C,

adapted to slide thereon, provided with angularly-arranged grooves *a a*, of a rocker-bar having a rack, blocks E E, adapted to slide on said bar, provided with projections engaging said grooves and pawls adapted to engage said rack, and means for oscillating said rocker-bar, substantially as and for the purpose described.

8. In combination, two head-blocks, each comprising the cross-bar B, the knee C, adapted to slide on said bar B, provided with angularly-arranged grooves *a a*, the racked rocker-bar D, blocks E E, adapted to slide on said bar D, provided with projections engaging said grooves and having pawls adapted to engage said rack-teeth, a connection between the rocker-bars, and a means for securing its reciprocation, substantially as and for the purpose described.

9. In combination, two head-blocks, each comprising the cross-bar B, the knee C, adapted to slide thereon, provided with angularly-arranged grooves *a a*, the racked rocker-bars D, provided with the tilting bar F, journaled thereon, blocks E E, adapted for a slide thereon, provided with projections engaging said grooves and having pawls adapted to engage said rack-teeth, and a connection between said rocker-bars and a means for securing its vibration, and a means for securing a tilt of said bar E, substantially as and for the purpose described.

IRWIN SWANK.

Witnesses:
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GEORGE W. WOODRUFF.