(No Model.) 3 Sheets—Sheet 1.

H. C. ROBB.

SAW MILL HEAD BLOCK.

No. 313,531. Patented Mar. 10, 1885.

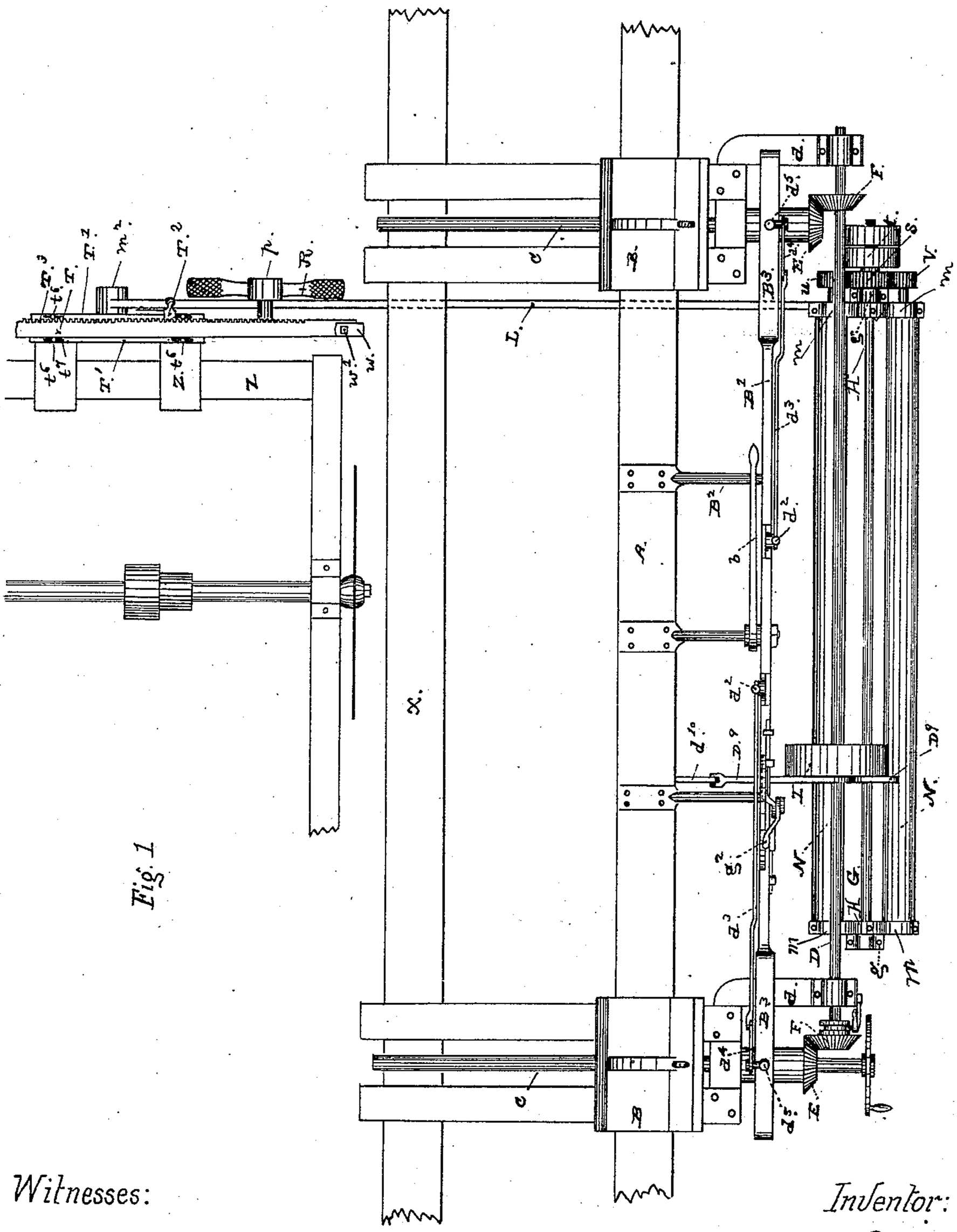

Fig. 1

Witnesses:

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G. W. Emerson

Inventor:

Herbert C. Robb

by E. G. Osborn Att'y.

(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

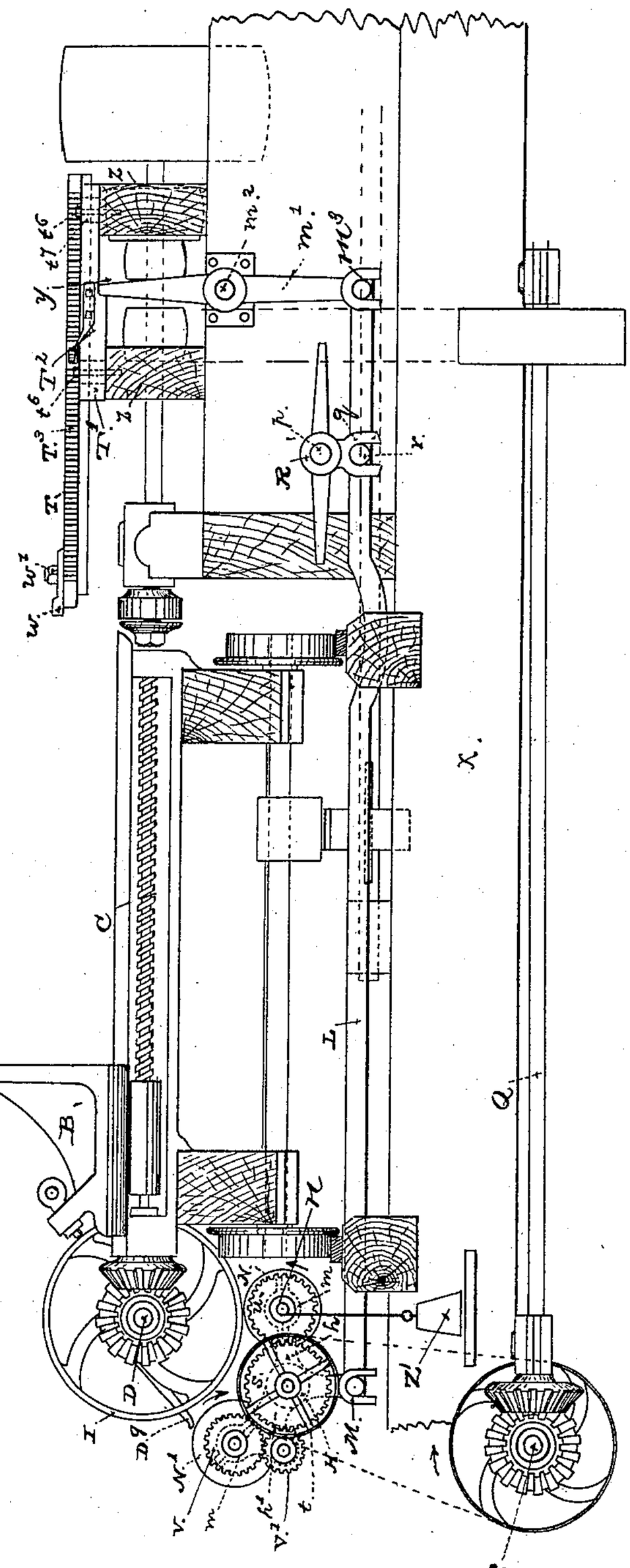
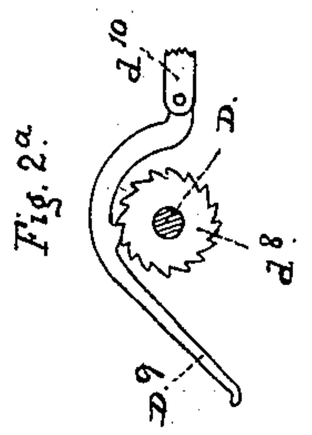


Fig. 2a.



Witnesses:

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(No Model.) 3 Sheets—Sheet 3.

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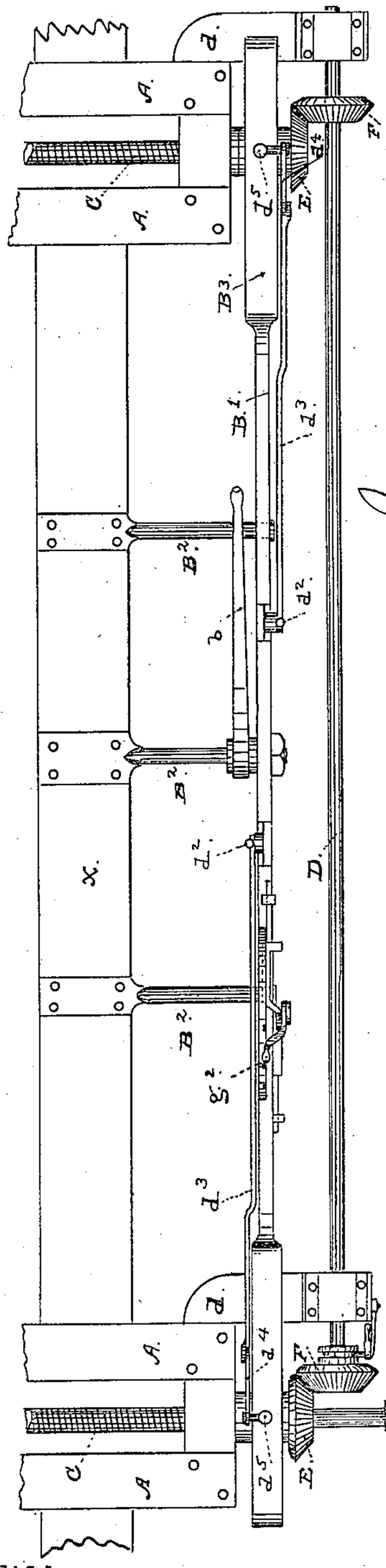

Fig. 3.

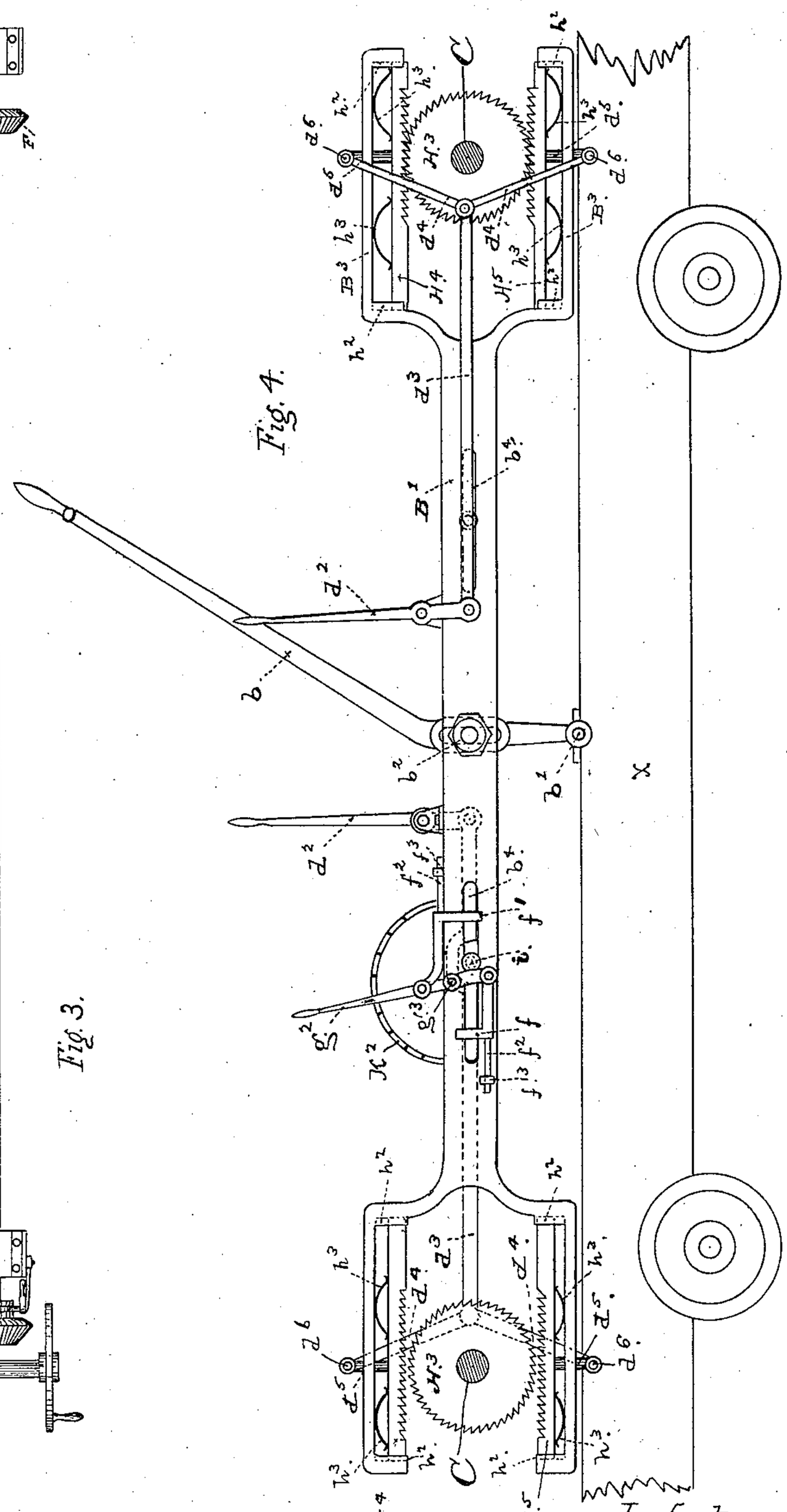

Fig. 4.

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UNITED STATES PATENT OFFICE.

HERBERT C. ROBB, OF SAN JOSÉ, CALIFORNIA.

SAW-MILL HEAD-BLOCK.

SPECIFICATION forming part of Letters Patent No. 313,531, dated March 10, 1885.

Application filed December 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, HERBERT C. ROBB, of San José, in the county of Santa Clara, State of California, have invented certain Improvements in Setting Mechanism for Saw-Mill Head-Blocks; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to improvements in devices for setting head-blocks of saw-mills, and it includes certain novel construction and combination of parts, whereby I produce a simple and effective setting mechanism and afford means for moving up the blocks by hand either separately or regularly together.

The following description fully explains the manner in which I proceed to construct, apply, combine, and use my said improvements, the accompanying drawings being referred to by letters and figures.

Figure 1 shows in plan part of a saw-mill carriage with my improvements applied to it; Fig. 2, a section in elevation taken transversely across Fig. 1 immediately to the right of the screw-shaft C which lies closest to the lever L, showing the power setting mechanism. Fig. 2ª is a detail view showing the locking device on shaft D. Fig. 3 is a plan and elevation of the hand setting mechanism. Fig. 4 is an end elevation showing the hand setting mechanism with the set-shafts in section.

The carriage and head-blocks are of the usual form and character. A A are the ways or guides for the blocks B B, and C C are the screw-shafts. A long shaft, D, having bearings in brackets *d d* on the blocks, is geared into the screw-shafts C C by miter-gears E F, and when rotated gives regular movement to both screws at once. To this shaft power is applied by operative mechanism that is brought and held into engagement with the shaft by a lever in front of the saw, and is thrown out of action when the lever is released. A shaft or rod, G, is fixed just beneath the shaft D in bearings *g g*, secured to the floor alongside of the run of the carriage, and in position parallel with the shaft D. The rod carries a collar or hub, H, provided with two branching arms, *h h*, on the ends of which are boxes *m m*, to take the journals *n* of two long rollers, N. These arms branch outwardly from the rod on opposite sides of the center, and hold the rollers in position above the rod, but on opposite sides of it. The rollers have such relation to a friction-wheel, I, fast on the geared shaft D, that each one can be brought into contact with the flat rim of the pulley by rocking or partly rotating the rod G. Such movement of the rollers is effected by means of a long bar, L, connected at the outer end to the forked end of a depending arm, M, on one of the hubs H, and carried along underneath the carriage-ways to the front of the saw, at which point it is connected with a foot-lever, R, at the side of the bed. This lever is a treadle set on a horizontal rock-shaft, *p*, and having a short depending fork that takes over a stud, *r*, on the side of the bar. Depression of either end of the treadle produces longitudinal movement of the bar and throws the roller-frame G H with sufficient length of movement to bring one or the other of the rollers N against the pulley-rim I. The direction of this movement also determines which one of the rollers is brought into use, and as their rotation is in contrary directions the shaft D receives rotation in a forward direction from the contact of one roller, and is reversed when the other roller is brought up against the pulley. The rollers receive continuous rotation through a system of gears driven from a shaft, P, beneath, to which motion is given from the saw-shaft through a counter-shaft, Q, and bevel-gears. The roller-actuating gears consist of a spur-wheel, *s*, driven by a pulley, *t*, belted into the shaft P, a wheel, *u*, on the shaft of roller N, geared directly into the wheel *s*, and the wheel V and idler-pinion V′, for giving rotation to the roller N′ in reverse direction. The rollers, therefore, run toward each other. The shaft P has a fast and a loose pulley for affording means of starting and stopping the power-set as needed. The roller frame and connections are so balanced that when pressure is taken from either end of the treadle the rollers take a position clear of the pulley-rim, and the two are held out of action. A weight, Z, is used for this purpose, as seen in Fig. 2. Pressure applied to the outer end of the treadle R will throw the outer roller into action, while the opposite end of the treadle, being depressed, will throw the inside roller against the pulley or friction wheel. Rotation of the shaft D, and consequent movement of the blocks, is thus

produced in the required direction as long as the contact of roller and pulley is maintained. Connected with the outer end of the bar L is an upright rocking lever, m', with a forked end, m^3, to engage a stop on the end of the bar.

A guide-plate, T′, forms a track for a sliding bar, T^2, and the two together form an extensible rod or bar, one moving upon the other, but the two locked together by a stop and a ratchet, T^3. One end of the lever m', working in line and contact with a shoulder, y, on the bar, is thrown back as the bar is pushed back on the timbers z. The part T′, set upon the timbers $z\,z$, is held by screws t^6, passing through slots t^7 in the plate, to permit sliding movement back and forth. The bar T is extensible to give different lengths, and its position upon the frame $z\,z$ in front of the saw is such that its front end projects forward toward the face of the log and at right angles to the movement of the carriage. The front end is set also in such relation to the plane of the saw that in the setting operation, when the log is being moved forward preparatory to making a fresh cut, the face of the log strikes against the end of the bar after it has passed beyond the plane of the saw. The backward movement of the bar thus given acts through the lever m' and the bar L to throw the roller of the power-set away from the friction-wheel and stop further movement of the head-blocks. This stop mechanism thus throws the setting-gear out of action automatically. It is capable of adjustment to give any thickness of stuff, both of standard sizes and of any special variation, either greater or less than the regular measurements. As it is set in front of the saw, the scale by which the bar is set does not require the kerf to be taken into account, and no allowance for this loss is needed in setting the log. The end of the bar carries a movable pointer, w, that is held by a slot and set-screw, w', and the side of the bar is provided with a number of regularly-spaced teeth, holes, or notches, T^5, with which the locking-stop T^2 on the other part of the bar is held in contact to lock the two plates together. The movement of the slide upon the other part, being regulated by the spaces or distance between the teeth, gives adjustment in standard measurements, as in eighths or quarters, and the graduations are marked accordingly on the top of the bar. But to increase or diminish this amount of set the movable point w is set backward or forward on the end of the bar.

The hand setting mechanism affords means for working up the head-blocks by hand or for moving either block separately. A vibrating bar, B′, is supported in horizontal position between the screw-shafts and at right angles to them. A hand-lever, b, attached at b' to the carriage-timbers beneath, is connected to the bar at b^2. Fixed arms B^2, bolted to the carriage and having their ends set in slots b^4, support the bar and permit it to move longitudinally back and forth under action of the hand-lever. Each end of the bar has two arms or jaws, B^3 B^3, that project horizontally above and below and take in the screw-shaft between the shaft-bearing on the way A and the bevel-gear E on the end of the shaft. At this point a ratchet-wheel, H^3, is fixed on the screw-shaft, and movable ratchet-plates H^4 H^5 are set in the extensions of the bar B′. These plates are held in grooves h^2 in the arms, and are pressed out against the ratchet-wheel by springs h^3. They are also free to yield and slip over the wheel without action on the backward movement. The teeth of the lower plate have opposite inclination to those of the plate above the ratchet-wheel, so that in the movement forward, or in one direction, the bar B′ produces rotation of the ratchet-wheel through the uppermost plate, and on the return-stroke it moves the wheel by the engagement of the lower ratchet-plate. The teeth have a sharp inclination, and as the plates are held to the ratchet-wheel by springs they readily slip over the wheel without taking hold on the backward stroke. By means of this single bar and its lever, therefore, the screw-shafts are turned simultaneously. The amount of this movement is regulated and determined by means of an adjustable stop device. This device is shown in Figs. 3 and 4 of the drawings, and is composed of a lever, g^2, fulcrumed at g^3, and having two hook-shaped fingers, $f\,f$, pivoted to it—one above and the other below the fulcrum g^3—and the ends of both projecting in line with a fixed stop, i, formed by the end of the arm B^2, that extends through the slot in the bar B′. By changing the position of the lever g^2 the ends of the fingers f are moved horizontally either toward or away from each other, and the distance between these two points, therefore, determines the extent of throw of the bar. The fingers are supported and caused to move in line by fixing a guide-rod, f^2, to the hooked end of each one, and an eye, f^3, on the bar for the rod to play through. The position of the regulating-lever is controlled by placing a segment-rack, K^2, on the top of the bar, with spaced notches to take a locking-pawl in the lever. These notches are so spaced with regard to the pitch of the screw-shaft that one complete throw of the bar forward and back will move the head-block a definite amount, which is increased or diminished in regular proportion as the lever g^2 is shifted from one notch to another. The notched plates at either end of the bar can be thrown out of action at will to operate one head-block alone. This is done by connecting the two plates at the same end to the end of a hand-lever, d^2, by a draw-rod, d^3, and a toggle-lever formed of two short bars pivoted to the rod d^3 at the inner ends and attached at the outer ends to short posts or pins d^5, projecting from the back of the ratchet through guides in the bars B^3. When the levers d^4 are straightened, the ratchet-plates are drawn back clear of the wheel, and no movement of the screw-shafts takes place. Each set of plates H^4 H^5 has its

own lever d^2, and one or both ends of this setting-bar B′ can be thrown out of engagement with the ratchet-wheels H^3. Figs. 3 and 4 of the drawings show the construction and arrangement of these parts. The shaft D is provided with a locking device, to hold the blocks from working backward, consisting of a ratchet-wheel, d^8, fast on the shaft D, and a hinged pawl, D^9, attached to a bar, d^{10}, projecting from the carriage. The ratchet allows the shaft to turn in one direction, but locks it from turning the other way. The end of the pawl is carried over the roller N, so that as the roller is raised up against the pulley I it throws off the pawl automatically and releases the shaft D. These parts are shown in Figs. 2 and 2^a of the drawings. In this manner, as before described, I produce a simple and effective setting mechanism, wherewith large logs can be handled and adjusted with accuracy and facility.

The mechanism saves a considerable amount of labor, and dispenses with the services of a setter, and the hand setting mechanism as auxiliary thereto gives complete control and exact adjustment of the work.

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

1. In a saw-mill set-works, the combination, with a rod or lever connected with and forming part of mechanism by which the setting-gear is thrown into and out of action as required, of an extensible stop-bar placed with relation to the saw or line of cut and the travel or forward movement of the head-blocks upon their ways, as described, whereby the setting-gear is throw off and the feeding up of the head-blocks automatically arrested by contact of the face of the log with the head of the stop-bar, substantially as set forth.

2. In a saw-mill set-works, the combination, with the head-blocks and setting mechanism arranged for operation upon one side of the saw, of a stop-bar placed upon the opposite side or in front of the saw, and mechanism connecting said stop-bar with the setting-gear, whereby the extent of movement of the log is automatically controlled and the amount of feed required to produce a plank of given thickness is determined by the said stop-bar without making any allowance for the kerf, substantially as set forth.

3. The combination, with the swinging frames and power-driven rollers carried thereby, of the lever L, connected to the swinging frames and extended across the machine, the upright lever m', connected therewith, the extensible lever T T′, connected with or operated by the upright lever m', and the adjustable point w, secured upon the lever T T′, substantially as and for the purpose set forth.

4. The combination, with the head-blocks and set-shafts, of the ratchet-wheels H^3, set upon said shafts, the sliding bar B′, having the jaws B^3, with yielding ratchet-plates H^4, which are capable of being made to engage alternately with the wheels H^3, the hand-lever b, for operating the bar B′, a fixed stop, i, for limiting the movement of the bar, and the adjustable stops f f', adjusting-lever g^2, upon which they are placed in such manner as to both be moved apart or toward each other by one movement of the lever, and a segment-bar, K^2, for fixing the lever g^2 at any point, substantially as set forth.

5. A power setting mechanism or apparatus for saw-mills, consisting of a long shaft geared into the head-blocks set-shafts, and having a friction-wheel, a pair of drums or rollers, and means for imparting to them simultaneous rotation in opposite directions, mechanism whereby either of said rollers can be brought when required into contact with the rim of the friction-wheel, a stop-bar capable of adjustment as to length to bring its head to or from the line of cut or the plane in which the saw travels, a means of ascertaining and determining this length and of setting the said bar, and mechanism connecting said bar with the revolving drums or rollers, substantially as and for the purpose set forth.

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Witnesses:

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G. W. EMERSON.