(Model.)

4 Sheets—Sheet 1.

DE WITT C. PRESCOTT.

SAW MILL SET WORKS.

No. 310,848. Patented Jan. 13, 1885.

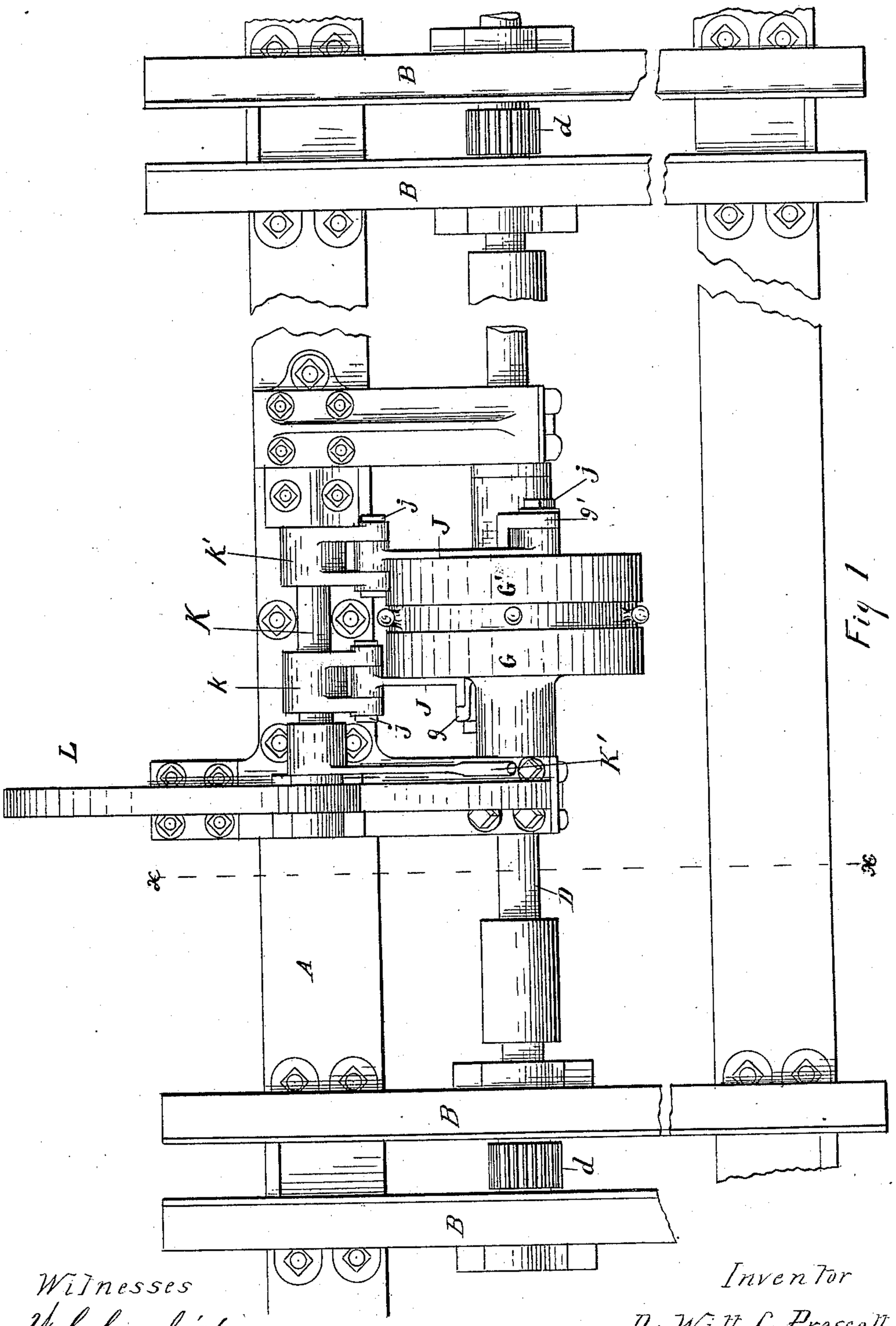

Fig 1

Witnesses
H. C. Curtis
A. M. Best

Inventor
De Witt C. Prescott
By Coburn & Thacher
Attorneys

(Model.)

4 Sheets—Sheet 2.

DE WITT C. PRESCOTT.

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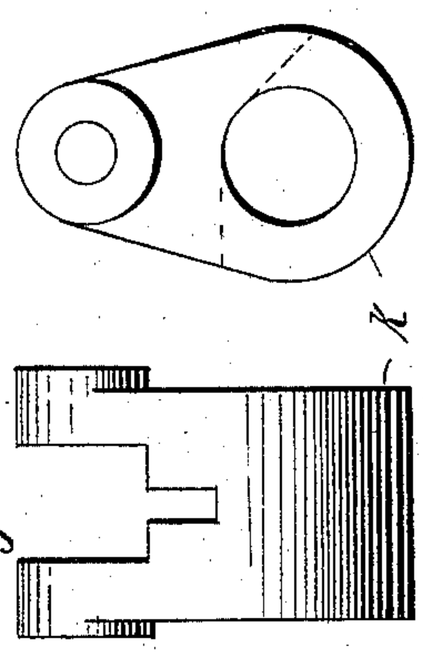


Fig 3

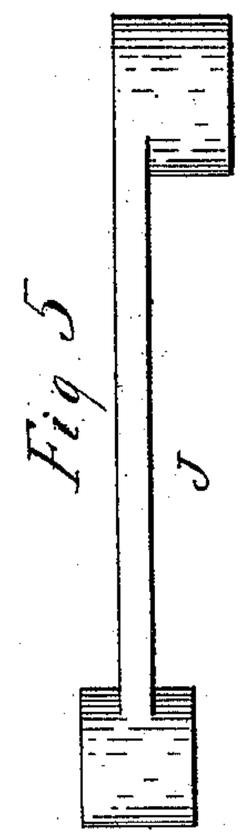


Fig 5

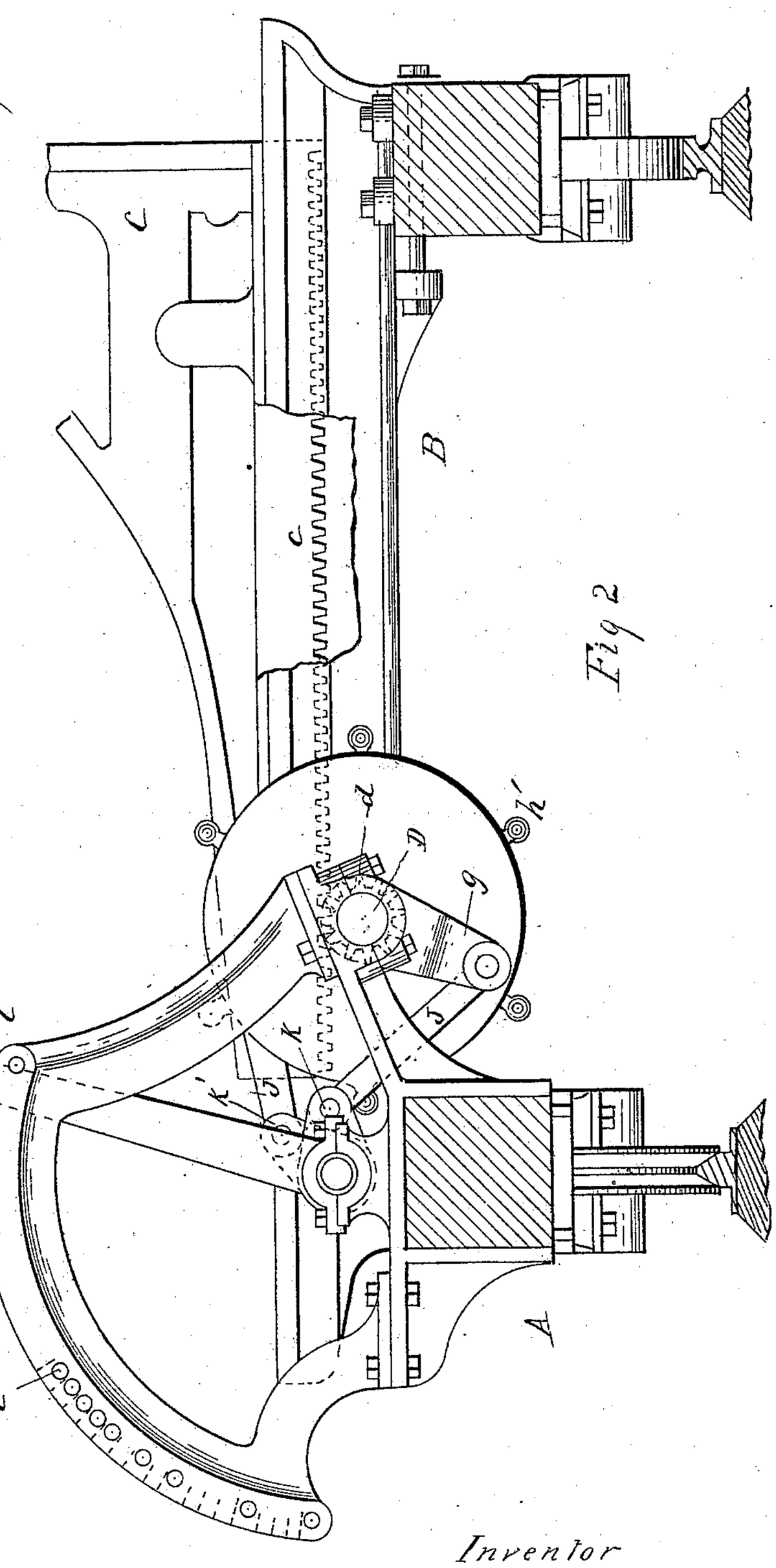


Fig 2

Witnesses
W. C. Curtiss
A. M. Best

Inventor
De Witt C. Prescott
By Coburn & Thacher
Attorneys

(Model.)

4 Sheets—Sheet 3.

DE WITT C. PRESCOTT.

SAW MILL SET WORKS.

No. 310,848. Patented Jan. 13, 1885.

Fig 7

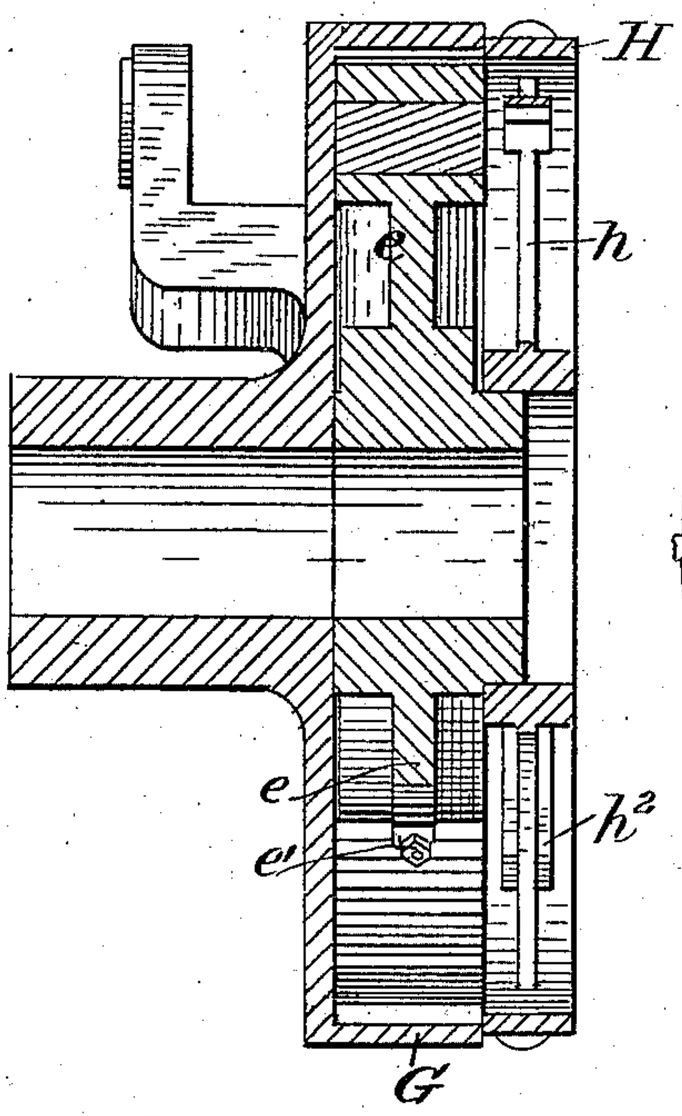


Fig 6

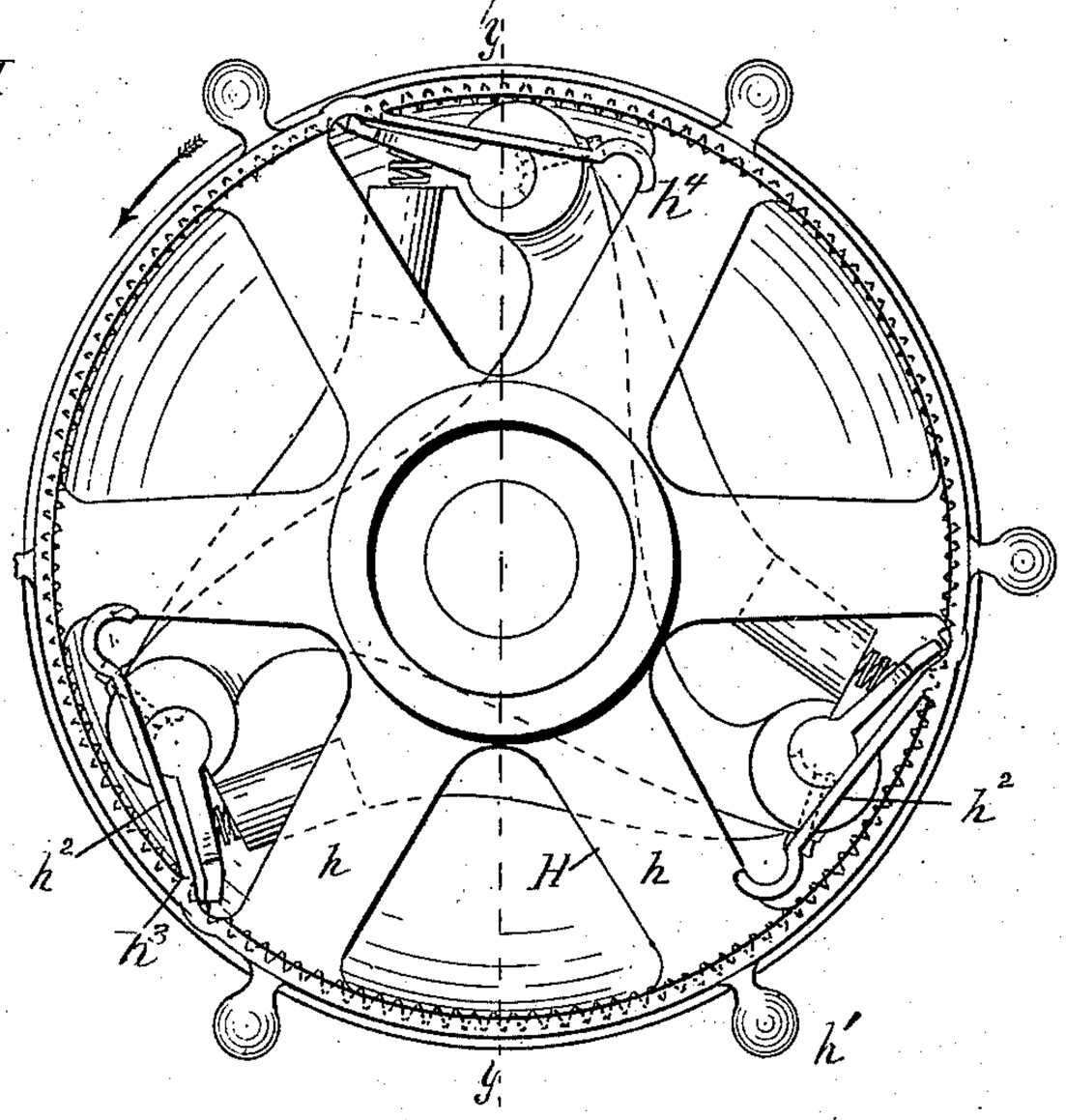


Fig 9

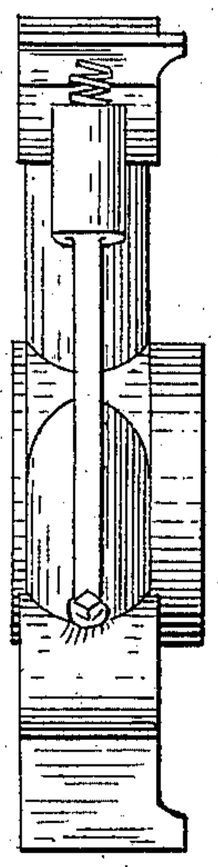


Fig 8

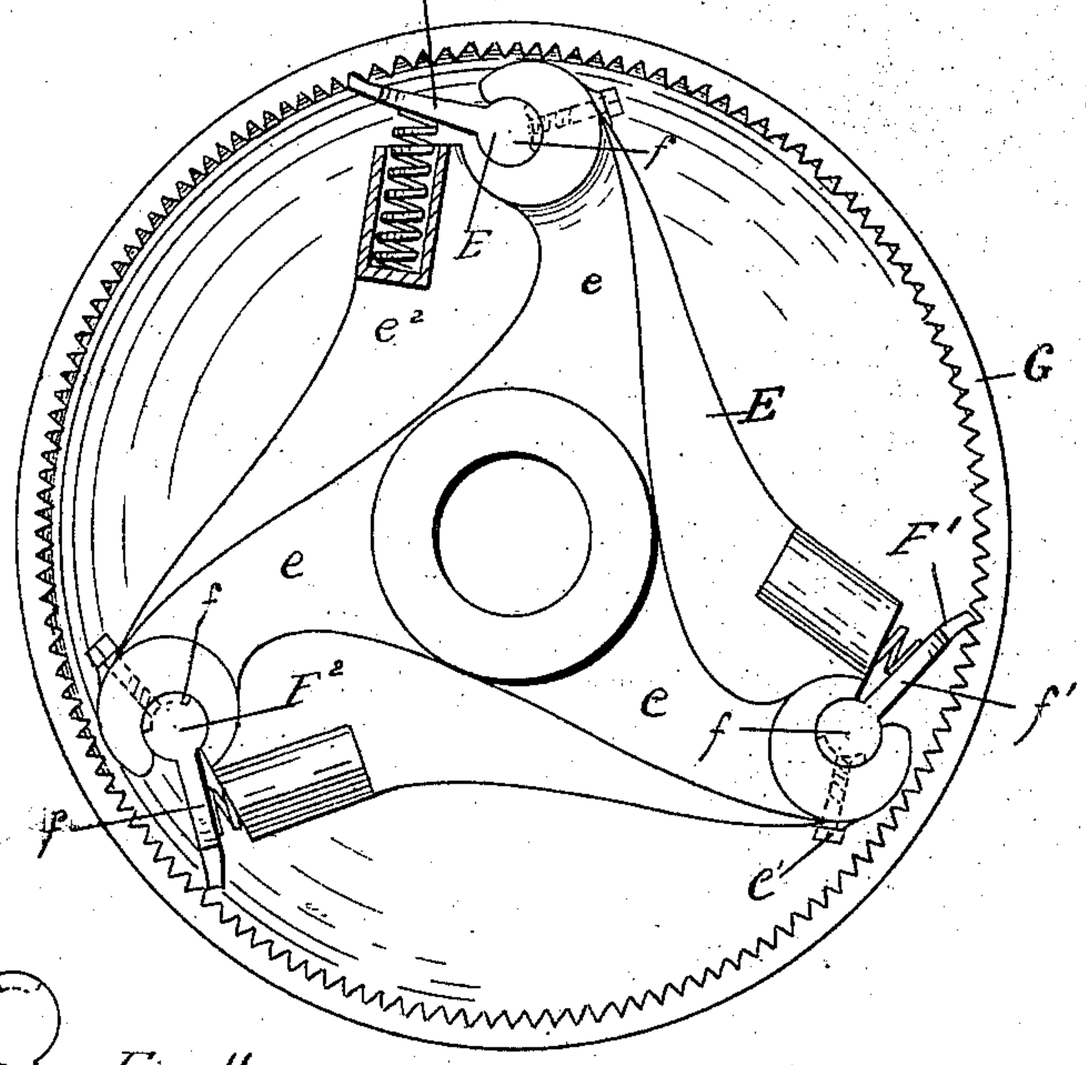


Fig 10

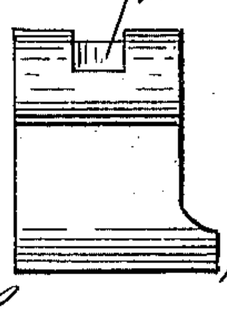
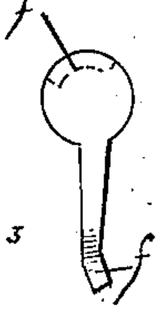


Fig 11



Witnesses
W. C. Coles
A. W. Best

Inventor
De Witt C Prescott
By Coburn & Thurlow
Attorneys

(Model.) 4 Sheets—Sheet 4.

DE WITT C. PRESCOTT.

SAW MILL SET WORKS.

No. 310,848. Patented Jan. 13, 1885.

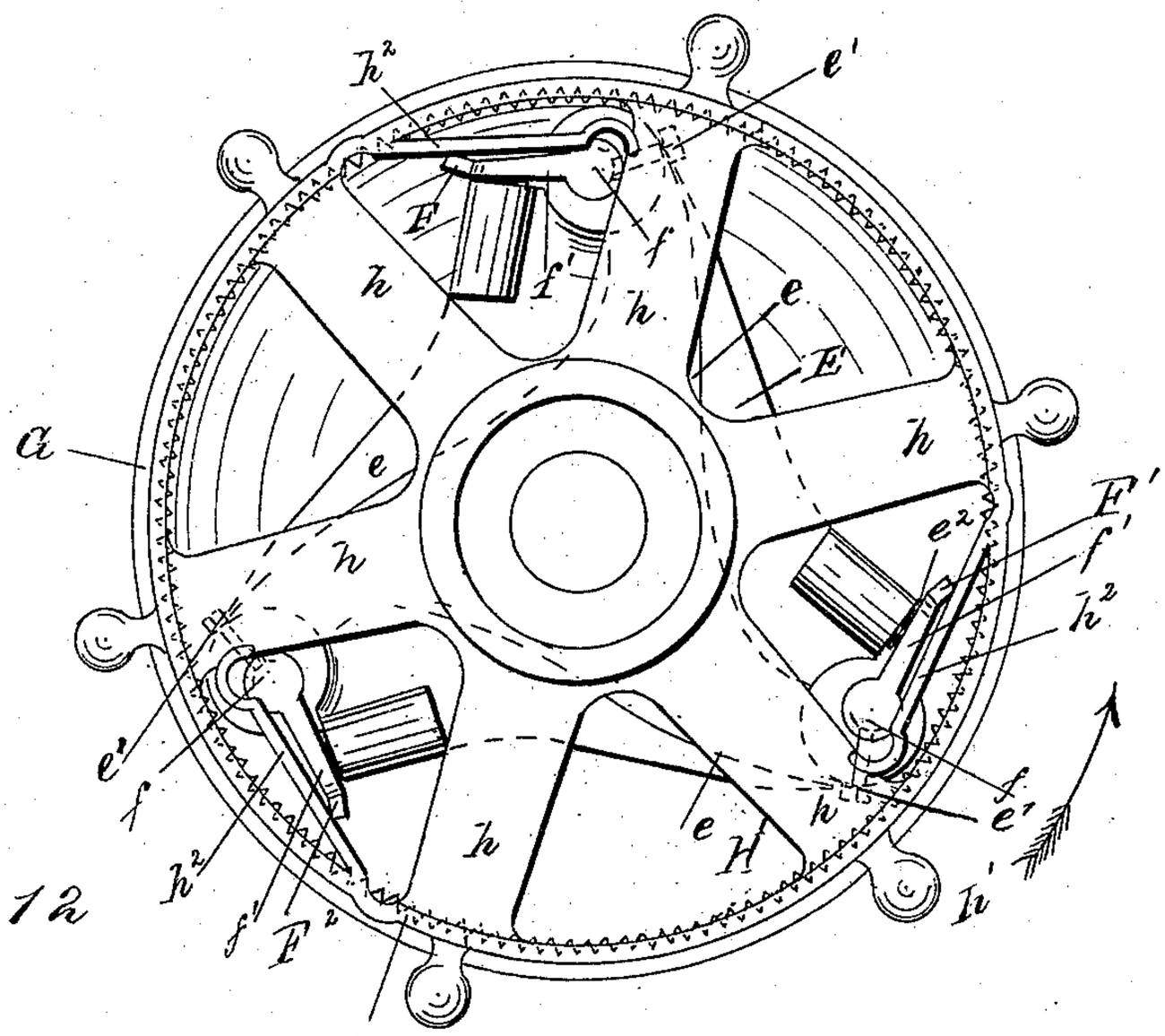


Fig. 12

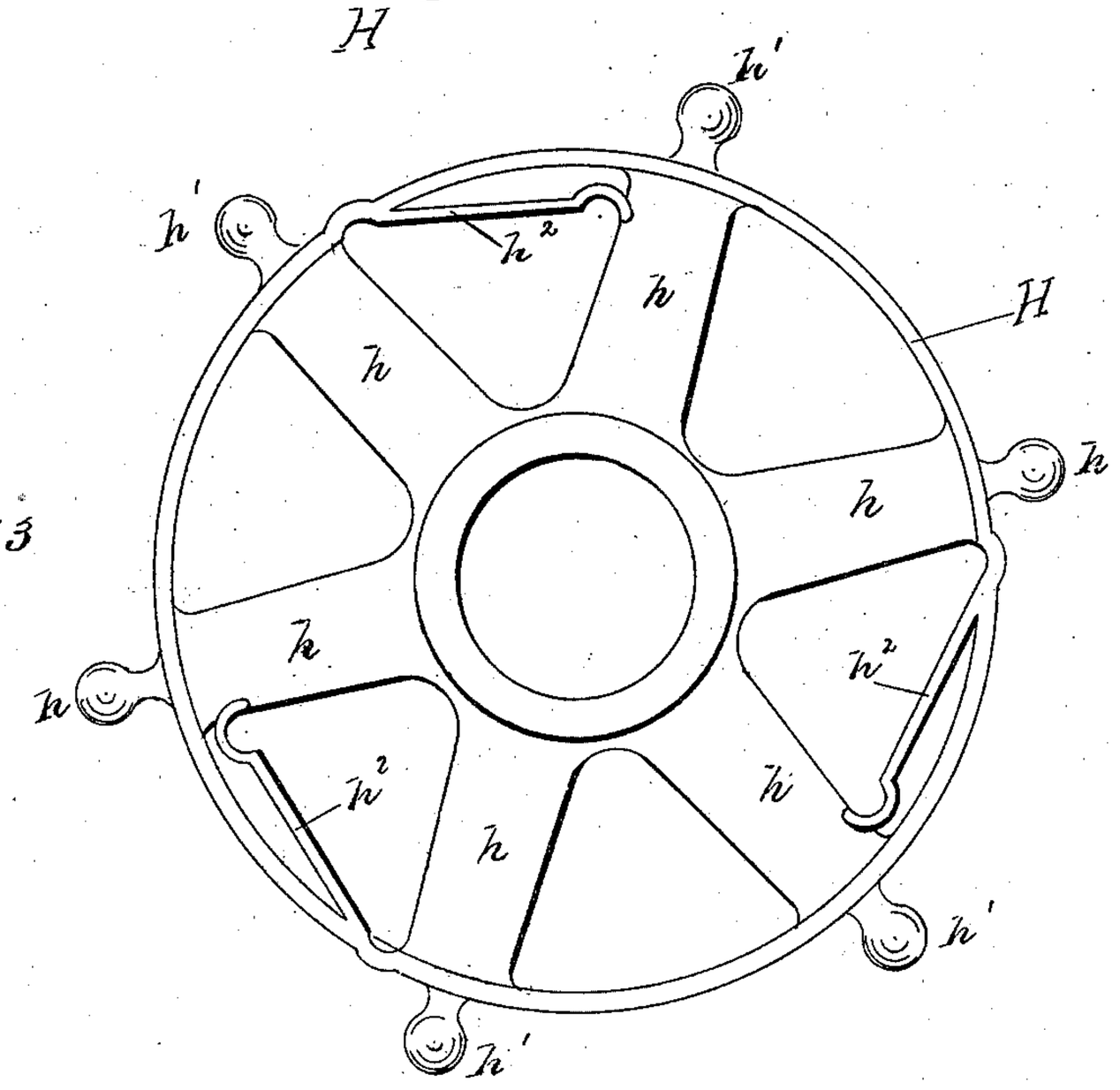


Fig. 13

Witnesses
H. C. Cooke
A. M. Best.

Inventor
De Witt C. Prescott
By Cobum & Thacher
Attorneys

UNITED STATES PATENT OFFICE.

DE WITT CLINTON PRESCOTT, OF MARINETTE, WISCONSIN.

SAW-MILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 310,848, dated January 13, 1885.

Application filed February 17, 1883. (Model.)

To all whom it may concern:

Be it known that I, DE WITT C. PRESCOTT, a citizen of the United States, residing at Marinette, in the county of Marinette, in the State of Wisconsin, have invented certain new and useful Improvements in Setting Mechanism for Saw-Mills, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a log-carriage provided with my improved setting mechanism, the head-blocks, shafts, and beams of the carriage being partly broken away, and the knees or standards being taken off. Fig. 2 is a section of the same on the line *x x* in Fig. 1, the upper part of the knee or standard and part of one head-block being broken away. Fig. 3 is a detailed edge elevation of one of the rocking arms. Fig. 4 is a side elevation of the same. Fig. 5 is a detailed side elevation of one of the links which connect the rocking arms with the crank-arms of the ratchet-wheels. Fig. 6 is a detailed side elevation of the pawl-depressor, one pawl-carrier, and the corresponding ratchet-wheel. Fig. 7 is a section on the line *y y* in Fig. 6. Fig. 8 is a detailed side elevation of one pawl-carrier and its ratchet-wheel. Fig. 9 is a detailed edge view of the pawl-carrier. Fig. 10 is a similar view of one of the pawls enlarged. Fig. 11 is a side elevation of the same; Fig. 12, a side elevation of the pawl-carrier and ratchet-wheel, with the pawl-depressor turned into position to disengage the pawl from the ratchet; and Fig. 13, a similar elevation of the pawl-depressor detached.

The same letters denote the same parts in all the figures.

My invention relates to the setting mechanism by which the knees or standards which hold the log in line with the saw of a circular-saw mill are laterally shifted, so as to give the log a new alignment after each cut. The object of it is to provide for a more minute variation in the successive positions of the knees than has been found practicable heretofore consistently with accuracy in connection with a double-action lever; and to this end it consists in the several devices and combinations of devices, which will be fully set forth hereinafter, and definitely pointed out in the claims.

In the drawings, A denotes the main longitudinal beams of the log-carriage of a saw-mill.

B denotes the head-blocks which support the log to be sawed. As shown in the drawings, a pair of them extend from side to side at each end of the carriage, the blocks of each pair being a slight distance apart. Upon them, and lengthwise of them, slides the knee or standard C, which holds the log in its proper alignment with the saw. From the lower side of this standard, and between the two head-blocks, project a series of teeth, *c*. The set-shaft D, which is supported in bearings at the ends of the carriage, carries between each pair of head-blocks a pinion, *d*, which engages with the teeth of the standard, so that the turning of the set-shaft causes the standard to move along the head-blocks. All these parts are already in use, and, in themselves considered, do not form any part of the present invention.

On the set-shaft D, at a convenient point of its length, are rigidly keyed side by side a pair of pawl-carriers, E. Each carrier has three equal and equidistant radial arms, *e*, each carrying at its extremity a pawl, F, F′, or F². Each pawl consists of a disk portion, *f*, at its inner end, which rests in a socket of corresponding form in the end of the arm *e*, and a straight portion, *f′*, which projects between the teeth of one of a pair of ratchet-wheels, G and G′, which have bearings on the set-shaft, one just outside of each pawl-carrier. Each ratchet-wheel has a flanged rim, which overhangs the adjoining pawl-carrier, the teeth projecting from this rim toward the center of rotation. The number of teeth, and consequently their distance apart, are determined by the degree of thinness to which it is desired to cut the boards, and consequently by the least distance which the standard is to move between two cuts. The pawl-sockets are not arranged on their arms in exactly correspondent positions, but so that the three pawls of each carrier divide the space between two teeth into thirds—that is, when one pawl rests in a notch and against the hinder tooth

of that notch, the next pawl in the line of rotation, F′, rests on the forward tooth of the notch opposite it, and lacks one-third the width of the notch of contact with the hinder tooth, the third pawl, F^2, resting at the same time on the crown of the forward tooth of its notch and lacking two-thirds the width of the notch of contact with the farther tooth. By virtue of this arrangement there is a fresh engagement of a pawl and notch at every turn of the ratchet-wheel past the pawl-carrier through an arc corresponding to one-third of the distance between the points of two teeth. Each pawl has in the edge of its disk *f* a longitudinal groove, f^2, corresponding to the distance through which the pawl has to turn in passing from a position of engagement with the teeth to one of disengagement. A dowel-pin, *e′*, threaded for part of its length, passes through the end of each arm *e* into the groove f^2 of the pawl which that arm carries, and thus keeps the pawl from getting out of place laterally. In each arm, opposite the straight part *f′* of the pawl, is formed a socket, and in this socket is arranged a coiled spring, e^2, which presses the pawl up against the teeth of the ratchet-wheel. The two pawl-carriers are a little way apart, and are preferably joined by a sleeve or hub. Between them, and on this hub, a pawl-depressor, H, has a bearing. It is a wheel of diameter equal to the extreme diameter of the pawl-carriers, and has six equidistant spokes, *h*. It has also knobs *h′* projecting from its rim, by means of which it can be turned by hand. Plates h^2 extend from alternate spokes of this wheel to the point h^3 on the rim near the next spoke, and as the relative position of these plates on the wheel H is the same as that of the pawl-carriers the respective pawls and plates will correspond when the wheel is turned to the proper point. A depression is formed in each plate h^2 at the point, h^4, where it is connected to the spoke. Each pawl, Fig. 10, has at its free end a lateral projection, f^3, which extends under the rim of the wheel H for about half the width of the latter, and consequently, at the proper time, under or inside the end of plate h^2, attached to such rim.

Referring to Fig. 6, and supposing the wheel H to move in the direction of the arrow, it is evident that the projection f^3 of the pawl shown at the top, for instance, will, as the wheel is turned, travel up the inclined plate away from the ratchet, the motion being accomplished against the pressure of the spring. When the depression in the plate h^2 arrives opposite the end of the pawl, the spring throws the pawl up and into such depression, where it is securely locked. All the other pawls are moved simultaneously in precisely the same manner. If the wheel is now stopped, the standard C can be moved back to receive a new log. This motion can be conveniently effected by means of a crank or hand-wheel rigidly centered on the set-shaft. Such means being already familiar, and not forming any part of the present invention, I have not shown any in the drawings. Each ratchet-wheel carries on its outer face a crank-arm, *g* or *g′*, rigidly affixed to it, and the wheels are so arranged on the set-shaft that the crank-arm *g* on the wheel G shall point downward and the crank-arm *g′* on the wheel G′ upward. Being thus arranged, each crank-arm is connected, by means of a link, J or J′, with a rocking arm, *k* or *k′*, both rigidly set at an acute angle to each other on a rock-shaft, K, which has bearings in the frame of the carriage, and is parallel to the set-shaft. Each link is pivoted to both crank-arm and rocking arm by means of pins *j*. A hand-lever, K′, is keyed to the rock-shaft, and a quadrant, L, is affixed to the carriage-frame at the side of the lever. A graduated scale is marked on the side of the quadrant, and perforations or sockets *l*, corresponding to the degrees, support a pin, by means of which the range of motion of the lever is determined. A stop-pin, *l′*, is permanently set at the end of the quadrant nearest to the set-shaft, so that the range of motion of the lever is between this pin and the movable pin, which is more or less near to the other end of the quadrant, the latter pin being set in any of the sockets that may be preferred. Obviously, the motion of the hand-lever in either direction will set both ratchet-wheels G and G′ to turning opposite ways, the distance through which they turn being limited by the range of the hand-lever. Turning in one direction, the teeth of the ratchet-wheel will push against the pawls of the adjoining pawl-carrier, and will thus cause the latter to turn the same way for the same distance, the other ratchet-wheel in the meantime turning the other way, and its teeth consequently slipping past the pawls of the pawl-carrier which adjoins it. The lever being moved in the opposite direction, the motions of the ratchet-wheels will be reversed, the one whose teeth formerly slipped over the pawls now pushing them forward, and thus, through the medium of the pawl-carrier, imparting motion to the set-shaft, and, by means of its pinion *d*, to the standard C. In this way moving the lever in either direction will turn the set-shaft forward, and thus by swinging the lever back and forth a continuous forward motion will be imparted to the standard, whose progress may be divided into extremely short stages, the arrangement of the pawls, which has been already described, making it possible to effect an exact double (or backward and forward) stroke of the lever in moving the standard over a distance corresponding to a turn of each ratchet-wheel through an arc of its circumference equal to one-third of the space between two teeth, since at every such turn a fresh contact of a pawl and tooth occurs on the wheel which is slipping past the pawls, which contact, of course, gives opportunity to reverse the motion of the wheel, so that it may

drive its pawl-carriers, while the other wheel slips by the pawls in contact with it. This motion can be regulated by ear by turning the lever one way till the click of a pawl is heard, and then turning it back till another click is heard. I have found that in this way, with a double throw of the hand-lever, the standard can be adjusted in successive positions one thirty-second of an inch apart. The casting in which the rock-shaft K has its bearings is preferably extended, as shown in Fig. 1 of the drawings, so as to afford additional bearings for the set-shaft also. The perfect parallelism of the two shafts is thus insured, and the set-shaft is prevented from springing.

The ratchet-wheels, pawl-carriers, pawls, and links are preferably made of steel, the other parts of iron.

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

1. An internally-toothed ratchet-wheel, a pawl arranged to engage automatically with the teeth, and an independently-revolving depressor provided with a plate about equal in length to the pawl, inclining from the periphery toward the center of the depressor, and arranged to engage with the pawl when brought opposite to it by the revolution of the depressor, substantially as and for the purpose described.

2. The pawl-carrier E, having radial arms *e*, provided, as described, with pawl-sockets and spring-sockets, in combination with pawls shaped and arranged as described, and with the ratchet-wheel G, having an internally-toothed flange, arranged to surround the pawl-carrier, substantially as and for the purpose described.

3. The pawl-depressor H, provided with the spokes *h*, arranged as described, and with the plates h^2, extending obliquely from spoke to spoke, and arched at their inner ends, substantially as and for the purpose described.

DE WITT CLINTON PRESCOTT.

Witnesses:
JOHN J. ANDREW,
R. E. MACE.