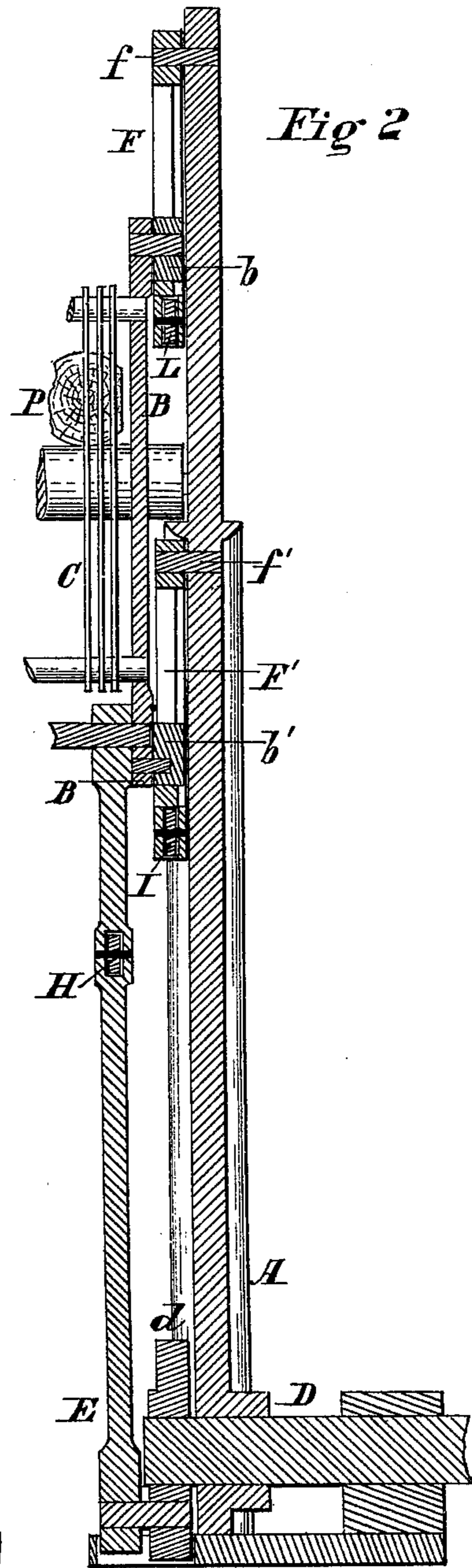
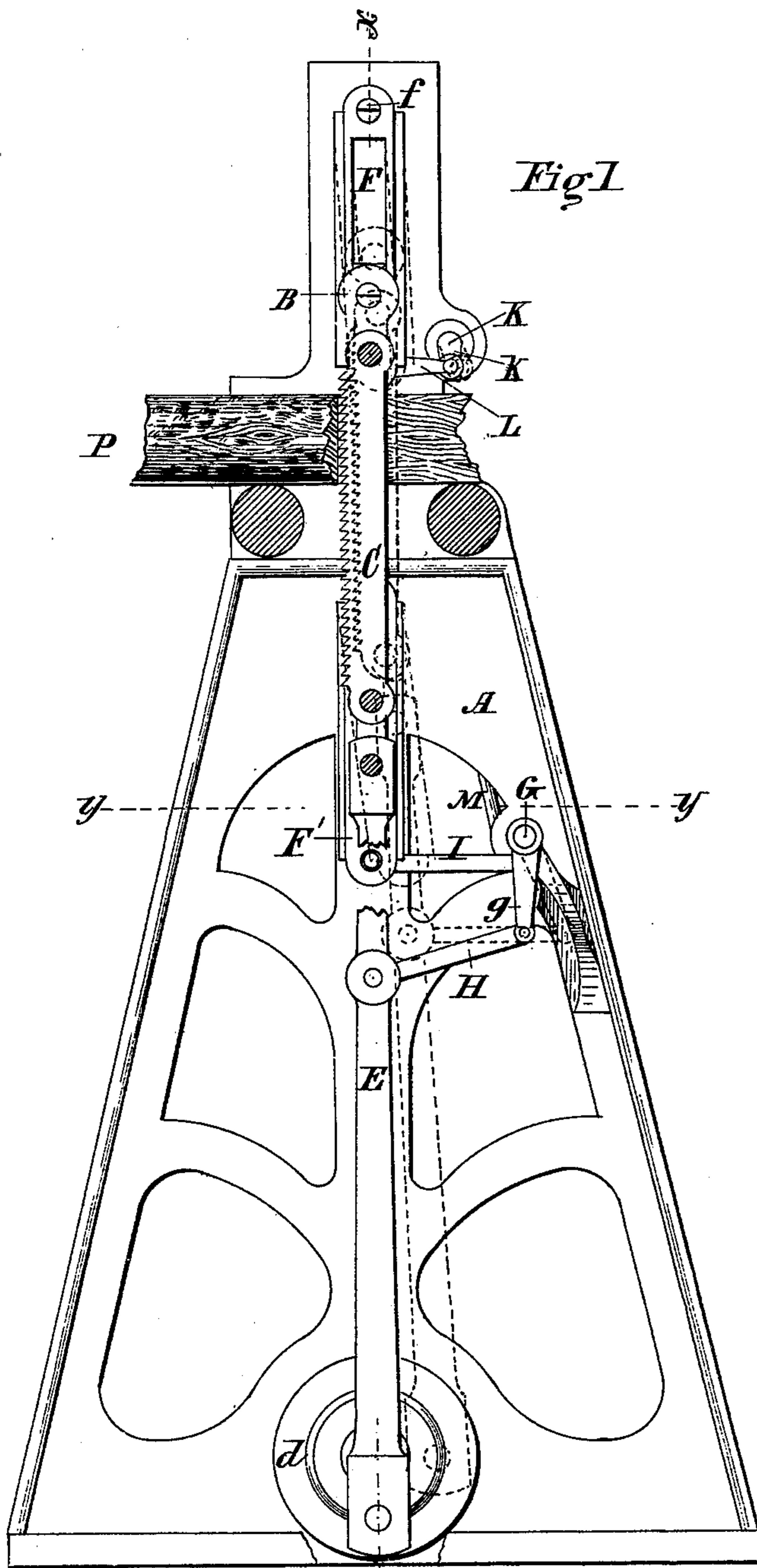


DeW. C. PRESCOTT.
Reciprocating Saw Mills.

No. 231,192.

Patented Aug. 17, 1880.



Witnesses

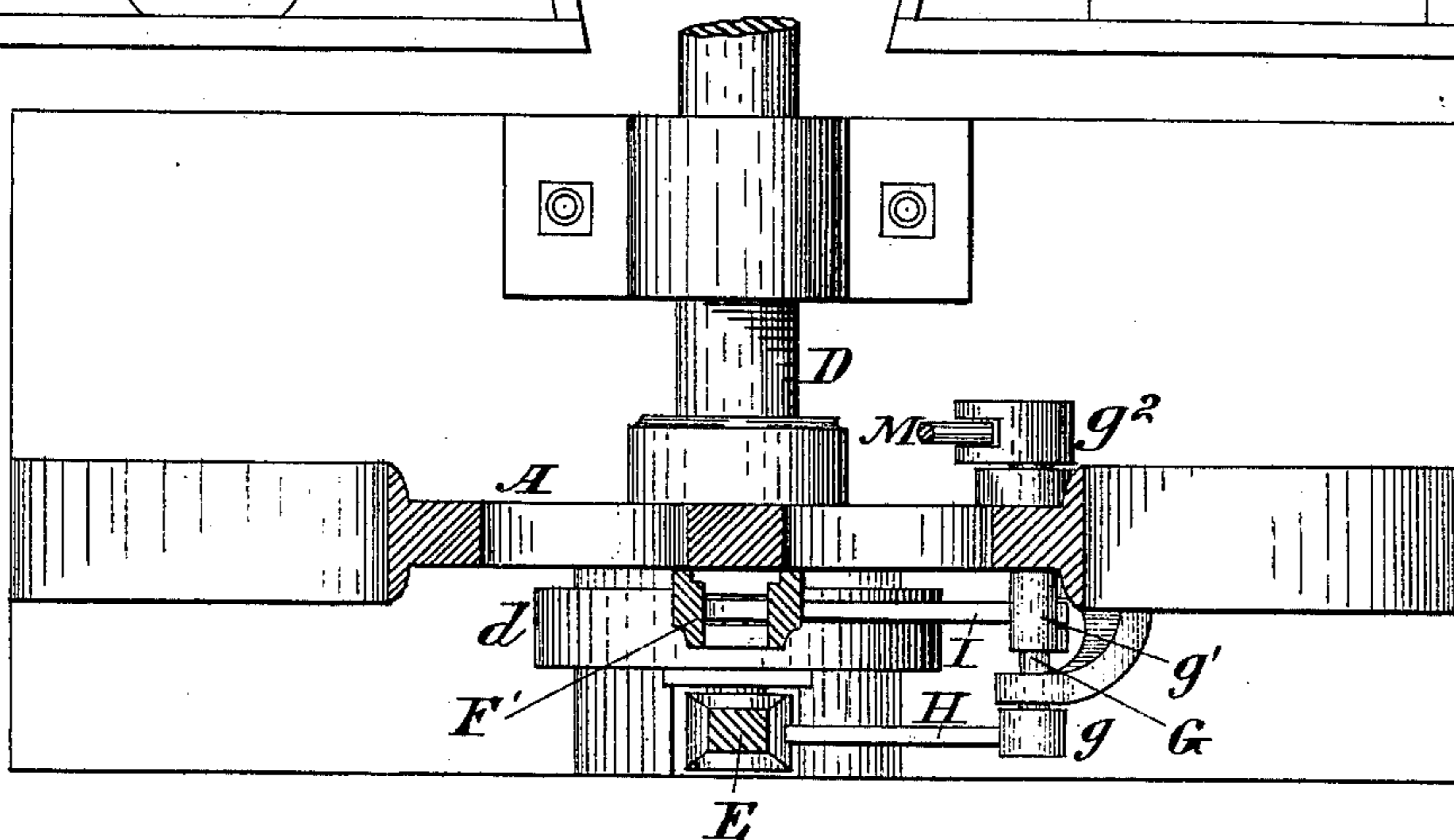
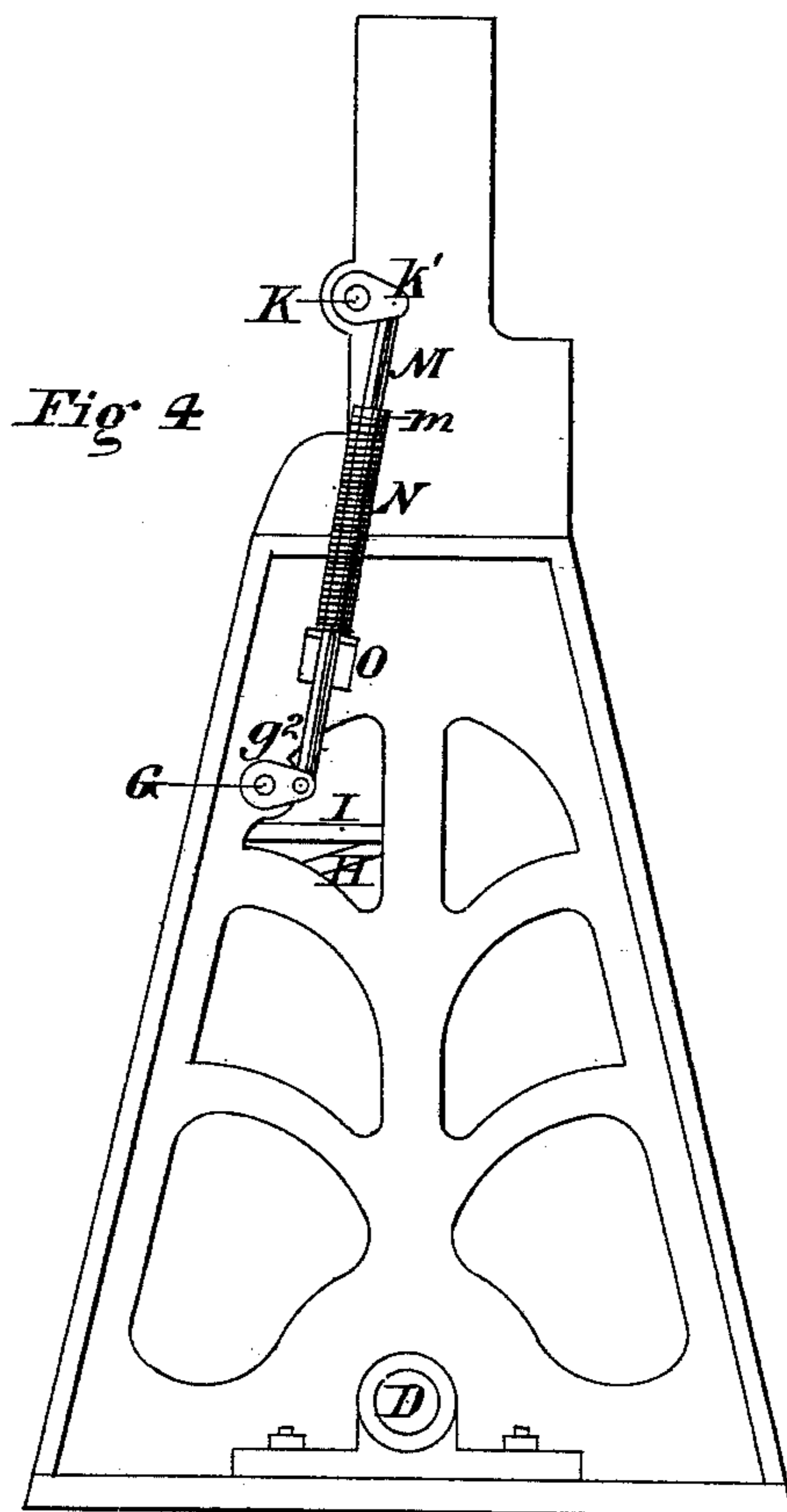
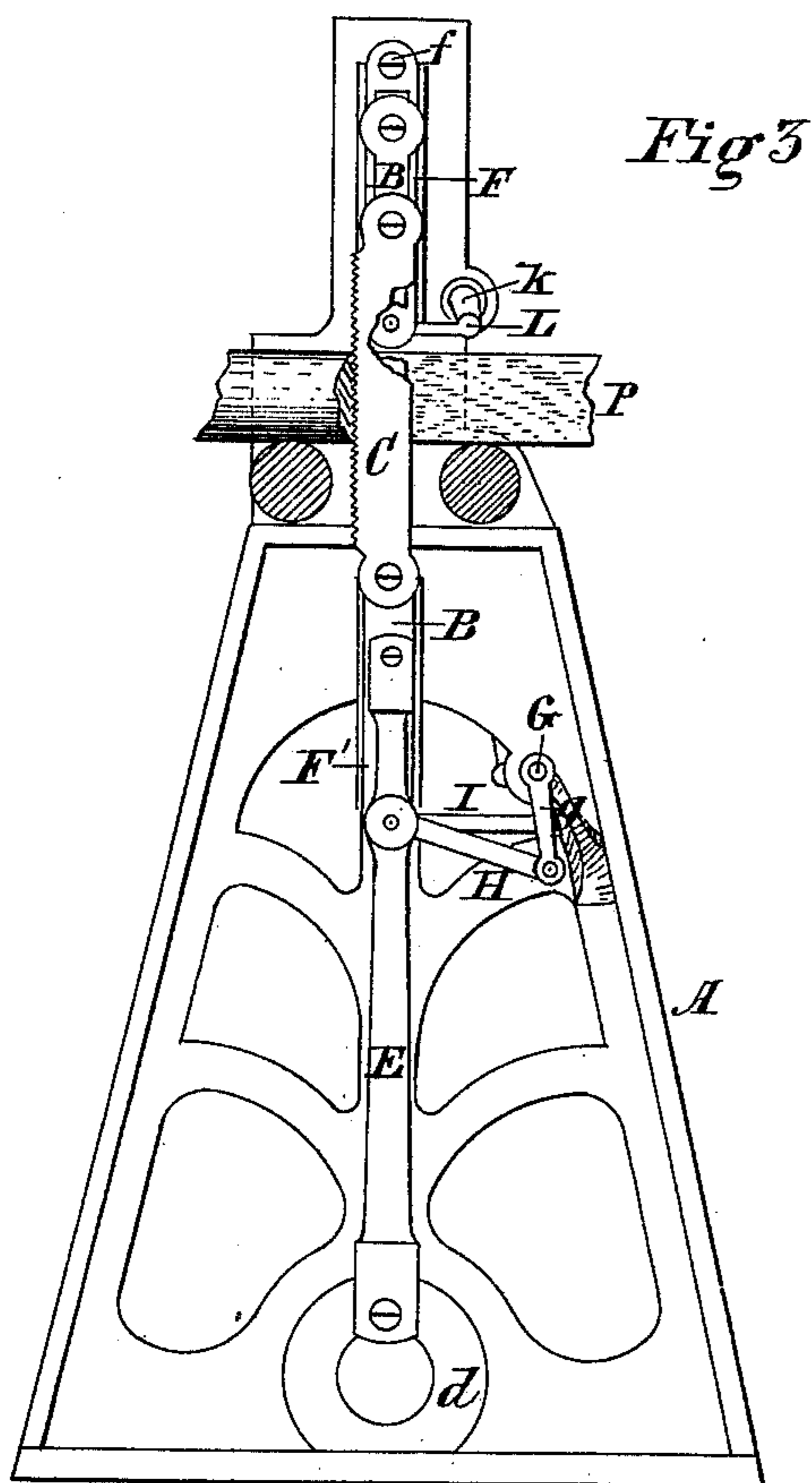
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Fig 5

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UNITED STATES PATENT OFFICE.

DE WITT C. PRESCOTT, OF MARINETTE, WISCONSIN.

RECIPROCATING SAW-MILL.

SPECIFICATION forming part of Letters Patent No. 231,192, dated August 17, 1880.

Application filed January 12, 1880.

To all whom it may concern:

Be it known that I, DE WITT C. PRESCOTT, of Marinette, county of Marinette, State of Wisconsin, have invented a certain new and
5 useful Improvement in Saw-Mills, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a vertical section of a
10 gang-saw frame and mechanism connected therewith, having my improvement applied thereto, the saws being shown in full lines at their lowest point of reciprocation, and in dotted lines at their greatest limit of oscillation; Fig. 2, a vertical section of the same,
15 taken on the line *x x*, Fig. 1; Fig. 3, a sectional view like Fig. 1, but on a smaller scale, and showing the saws at their highest point of reciprocation; Fig. 4, a side elevation of the
20 same, and Fig. 5 a plan section taken on the line *y y*, Fig. 1.

My invention is designed for saw-mills in which gang or muley saws are used, and relates to mechanism for producing a vibratory
25 or oscillating movement of the saws during the upward or idle stroke.

The invention consists in the combination of the gate or sash with mechanism whereby it is oscillated or moved backward and forward
30 bodily on the upward stroke.

It also consists in special mechanical devices for oscillating the gate or sash, and combinations of devices, the construction and operation of which will be hereinafter more fully
35 described, and the special improvements pointed out definitely in the claims.

Saws of the class above named have been given an oscillatory movement heretofore of a certain kind, for the purpose of moving the
40 saws backward during the upstroke to obviate dragging—that is, interference by the saws with the feed of the log. The movement referred to has been effected by oscillating one end of the saw only—either upper or lower.

I have heretofore obtained Letters Patent
45 No. 161,352, dated March 30, 1875, for an invention of this nature; but this construction has not proved entirely successful in overcoming the difficulty mentioned above, for if but
50 one end of the sash is oscillated the clearance of the teeth from the feed is not entirely effected.

My present improvement produces a movement of the entire sash backward and forward
bodily, thereby insuring a perfect and complete clearance of the saws during their upward stroke. 55

In the drawings, A represents a portion of the main or gang frame in which the sash is mounted, only one side of this frame being
60 shown. The sash or gate B is of any ordinary construction, only one side thereof being shown in the drawings, which, however, is sufficient to fully illustrate the construction and application of my improvement. In this sash or
65 frame one or more saws, C, are hung in the usual way. The main crank-shaft D is provided with a crank arm or wheel, *d*, to which the lower end of the pitman E is attached, the upper end being connected to the lower
70 end of the sash, as usual, and the main crank-shaft being caused to revolve in a direction opposite to the feed, as the mechanism is arranged in the drawings, though this is not an essential feature of construction. 75

The upper gang-slides, F, and the lower gang-slides, F', are hung on pivot-pins *f f'* or other suitable hinge-connections, by means of which they are respectively attached at their
80 upper ends to the gang-frame.

The boxes *b b'* are attached, respectively, to the upper and lower ends of the gate or sash, and are mounted, respectively, in the gang-slides F and F'. A rock-shaft, G, is mounted
85 in the gang-frame in rear of the lower end of the lower gang-slide, F, and projects on each side of the side framing of the gang-frame, across which latter it extends. On this rock-shaft, inside of the gang-frame, are two crank-arms, *g g'*, depending from the shaft parallel
90 with each other, and the one, *g*, on the extreme inside, being somewhat longer than the other. On the outer end of the same shaft, and outside of the gang-frame, is a third crank-arm, *g*², arranged about at right angles to the two
95 inside arms, *g g'*, or projecting forward from the shaft.

The lower end of the crank-arm *g* is connected, by a pitman, H, with the main pitman E. This pitman H is a little longer than the
100 distance between the arm *g* and the main pitman when both are vertical, and is connected to the latter at such a point that it will be in about a horizontal position when the main

crank is at the quarter-point on the downward stroke or reciprocation of the saws. A pitman or connecting-rod, I, connects the lower end of the crank-arm g' with the lower end of the lower gang-slide, F' , being horizontal, and of a length about the same as the distance between the crank-arm and slide when both are vertical.

A rock-shaft, K, is also mounted in the gang-frame, just in rear of the lower end of the upper gang-slide, F, and is provided with a crank-arm, k , on its inner end, inside of the gang-frame, and a second crank-arm, k' , on its outer end, outside of said frame. These two crank-arms are arranged at right angles to each other, and correspond precisely in position and relative arrangement with the crank-arms g' g^2 on the lower rock-shaft.

A horizontal pitman or connecting-rod L, connects the lower end of the crank-arm k with the lower end of the upper gang-slide, F, being arranged relatively to these two parts precisely the same as the pitman I in connection with its crank-arm and slide below. On the outside of the gang-frame the outer ends of the crank-arms g^2 k' are united by a connecting-rod, M, whereby movement of one is communicated to the other.

As an auxiliary device, this connecting-rod may also be provided with a coiled spring, N, wound around it, and held in place between a collar, m , on the connecting-rod and a bracket, O, on the gang-frame, in which the connecting-rod plays.

It will, of course, be understood that the mill is provided with any suitable mechanism for feeding the log P to the saws in the usual manner, which, however, is not shown in the drawings, as its particular construction is not essential, and constitutes no part of my invention. There is, of course, a duplicate oscillating mechanism on the other side of the sash.

The operation of this invention is as follows: When the downward or working stroke of the saws is completed the parts are in the position shown in Fig. 1 of the drawings. It is evident, then, that as soon as the crank passes the center and the upward stroke is commenced the pitman E, being moved gradually to the rear and upward, will, by means of the pitman H, rock the shaft G forward, thereby vibrating rearward the lower gang-slide, F' , by means of the crank-arm g' and the pitman I, which, of course, will carry back the lower end of the sash or gate; but the oscillation of the rock-shaft G above described will turn downward the outer crank-arm, g^2 , which, in turn, will pull downward the crank-arm k' through the connecting-rod M, and thereby oscillate the rock-shaft K forward to the same degree as the lower shaft, G, and through the crank-arm k and pitman L vibrate the upper gang-slide, F, rearward at the same time and to the same degree as the lower one, so that the upper end of the sash or gate will be carried rearward simultaneously with the lower end—or, in other words, the entire sash will

be moved rearward bodily. The full extent of this rearward movement will, of course, be reached when the crank is on the quarter on its upward movement, as shown in dotted lines in Fig. 1 of the drawings, soon after passing which point the oscillation is changed to the opposite direction or forward by the forward movement of the pitman E, thereby bringing the saws forward at the proper moment to commence the cut on the downward throw. The position of the parts at this moment is shown in Fig. 3 of the drawings, except the rake or overhang.

As the feed of the log takes place during the upward movement of the saw, it is obvious that all dragging on the saw-teeth in their ascent is prevented, both ends of the saws being carried backward, so as to provide a clear feed for the log.

The construction and relative arrangement of the pitman E, crank-arm g , and pitman H, as described above, are such that the backward vibration of the crank-arm is not commenced until the completion of the downward stroke of the saws, because the pitman H, being longer than the distance between g and E when both are vertical, and being attached to E at such a point as to be horizontal when the crank has reached the quarter on the downward movement, will from that position be pushed laterally toward G at the same time that it is drawn vertically away from it by the combined backward and downward movement of E, and therefore the downward movement of the sash is in a vertical direction, and the saws have a vertical action upon the log in their descent. The spring on the connecting-rod M serves to counteract the shock at each change in the vibration, thereby making the movement easy and uniform.

It will be understood that the customary rake or overhang is given to the saws in applying my improvement to actual use in any ordinary way. It is not necessary to describe the means here.

I have herein described and explained one mode of carrying my invention into effect. Obviously, however, other mechanism may be employed for providing the oscillatory movement herein described, and therefore I do not in all my claims limit myself to the specific oscillating mechanism herein shown and described.

As stated in the outset, this improvement is applicable to either muley or gang saws—that is, to all instances when a reciprocating gate or sash is employed.

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

1. In a saw-mill, a reciprocating gate or sash, in combination with vibrating upper and lower gang-slides, and mechanism, substantially as described, for vibrating said slides simultaneously, whereby the sash is moved bodily backward and forward, substantially as and for the purpose set forth.

2. A reciprocating saw gate or sash, in combination with vibrating upper and lower gang-slides, the main crank-shaft D, and intermediate mechanism, substantially as described, 5 operated by said shaft, whereby both upper and lower slides are vibrated simultaneously, substantially as and for the purpose set forth.

3. The reciprocating sash B, in combination with the vibrating upper and lower gang-slides, F and F', cranked rock-shafts G K, pitmen I L, connecting-rod M, and mechanism for oscillating the lower rock-shaft, G, operated by the main crank-shaft, substantially as described. 10

15 4. The main crank-shaft D, in combination

with the pitman E, sash B, vibrating gang-slides F F', rock-shafts G K, provided with crank-arms, as described, pitmen H, I, and L, and the connecting-rod M, substantially as and for the purpose set forth. 20

5. The vibrating upper and lower gang-slides, F F', in combination with the rock-shafts G K, provided with crank-arms, as described, pitmen I and L, connecting-rod M, and spring N, substantially as and for the purpose set forth. 25

DE WITT CLINTON PRESCOTT.

Witnesses:

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JOHN J. ANDREW.