

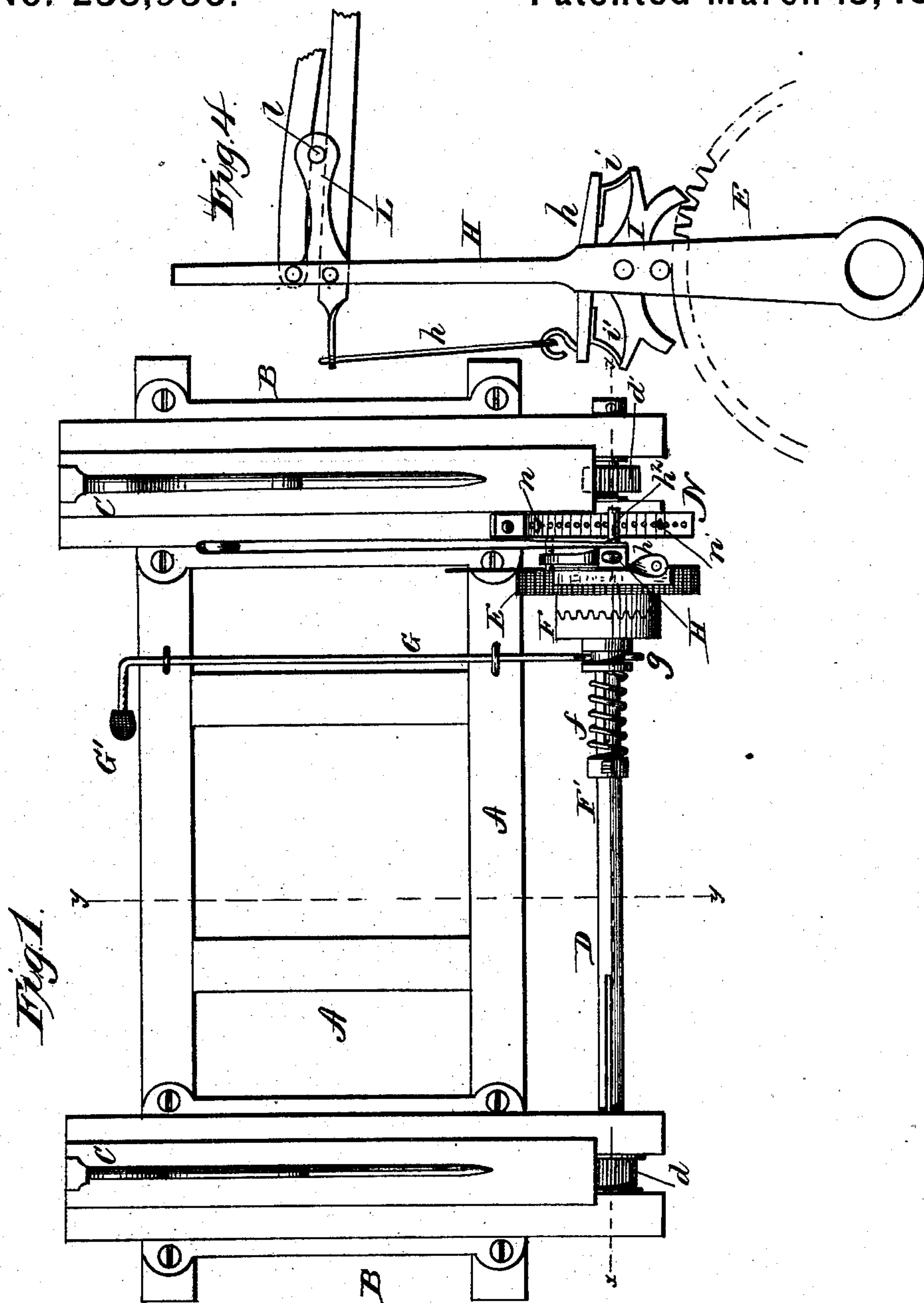
(No Model.)

3 Sheets—Sheet 1.

W. J. F. LIDDELL.
Head Block for Saw Mills.

No. 238,936.

Patented March 15, 1881.



Witnesses.
Frank L. Ouraud
John L. Center

Inventor.
W. J. F. Liddell.
by A. M. Smith & Co.
Attorneys

(No Model.)

3 Sheets—Sheet 2.

W. J. F. LIDDELL.

Head Block for Saw Mills.

No. 238,936.

Patented March 15, 1881.

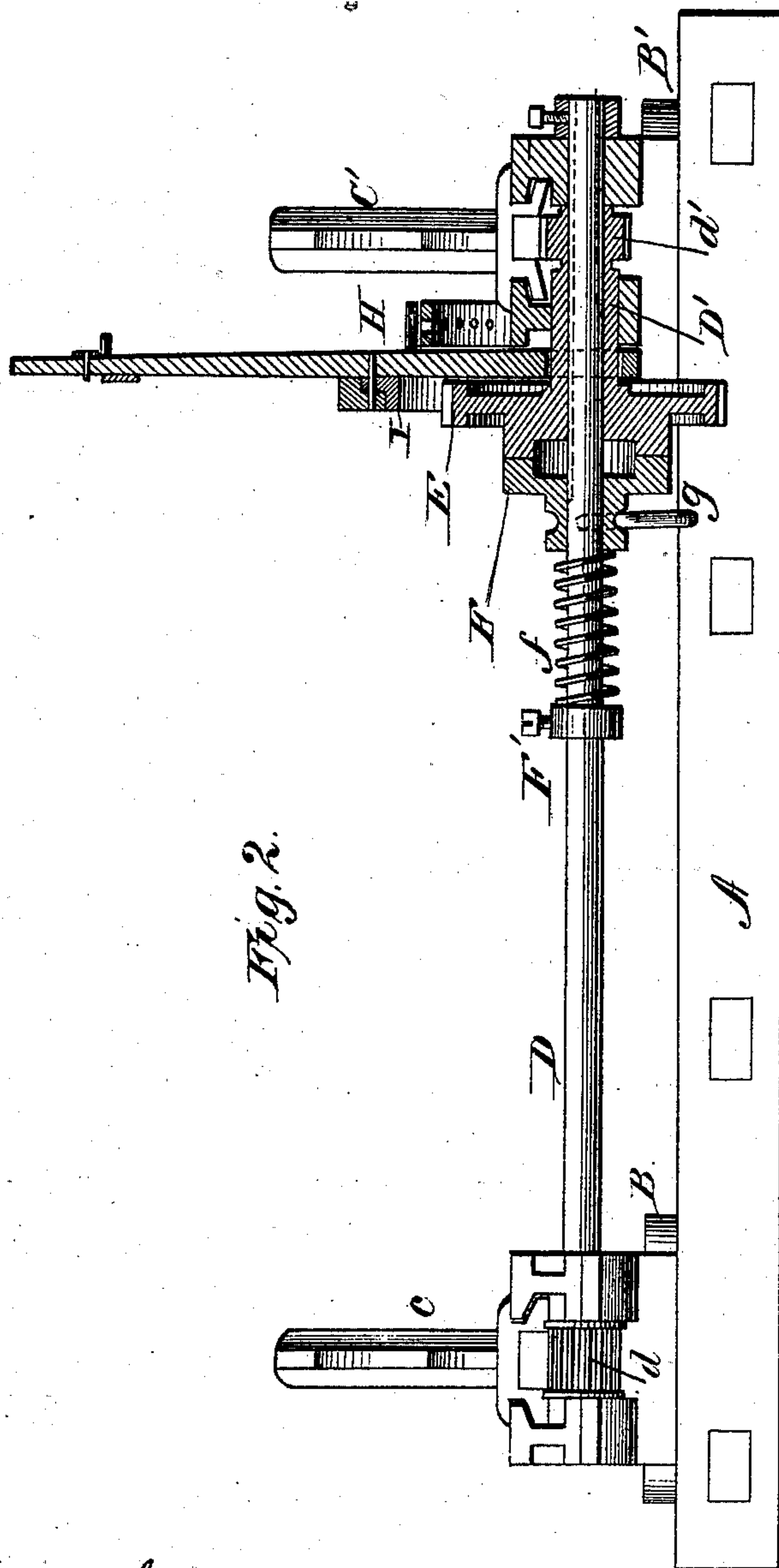


Fig. 2.

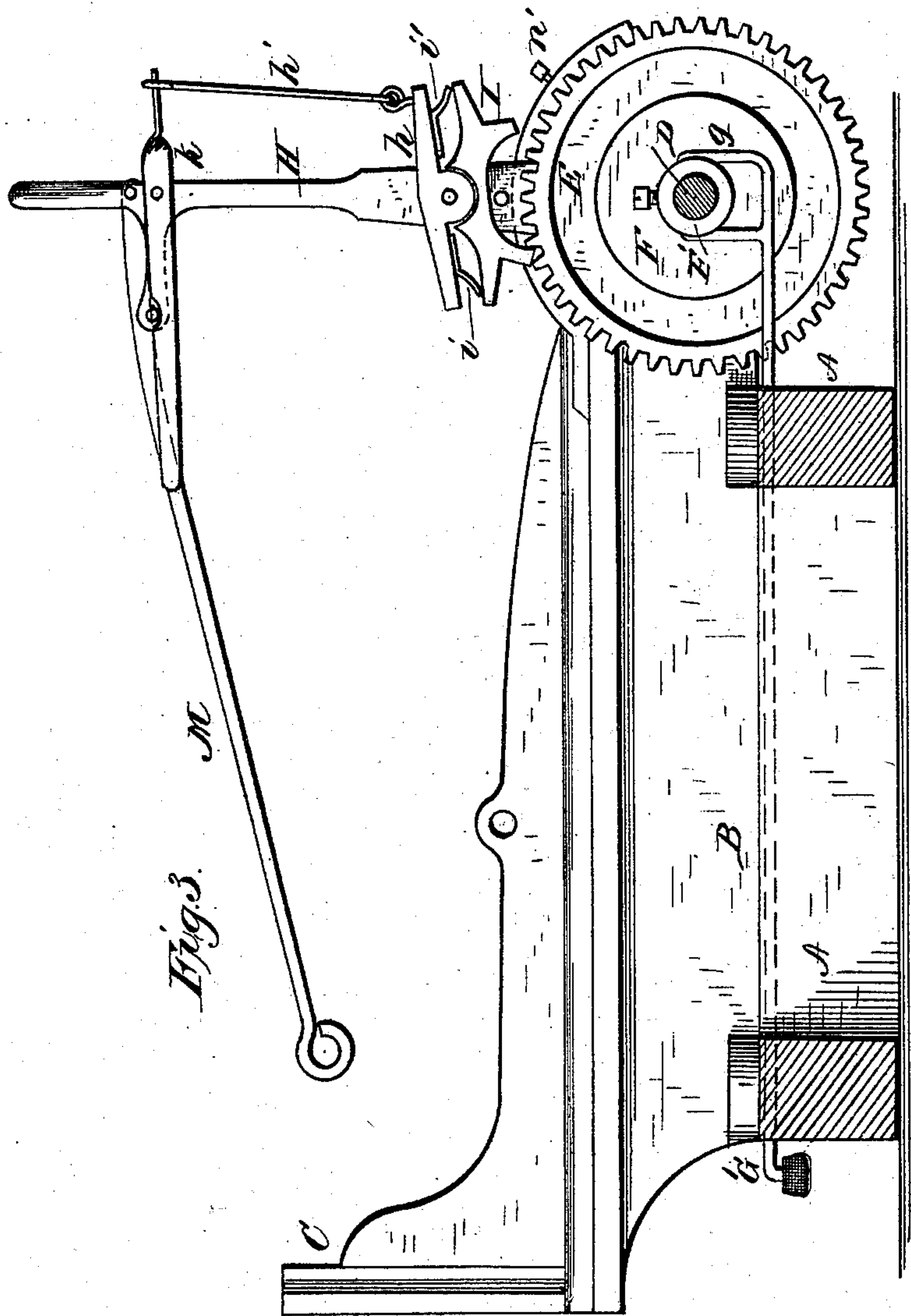
Witnesses.
Frank L. Ouraud
John L. Beuter

Inventor.
W. J. F. Liddell
by A. L. Smith & Co.
Attorneys

(No Model.)

3 Sheets—Sheet 3.

W. J. F. LIDDELL.
Head Block for Saw Mills.
No. 238,936. Patented March 15, 1881.



Witnesses
Frank L. Curran
John G. Leuder

Inventor
W. J. F. Liddell
by A. M. Smith & Co.
Attorneys

UNITED STATES PATENT OFFICE.

WALTER J. F. LIDDELL, OF CHARLOTTE, NORTH CAROLINA.

HEAD-BLOCK FOR SAW-MILLS.

SPECIFICATION forming part of Letters Patent No. 238,936, dated March 15, 1881.

Application filed January 13, 1881. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. F. LIDDELL, of Charlotte, county of Mecklenburg, State of North Carolina, have invented certain new and useful Improvements in Head-Blocks for Saw-Mills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan or top view of a head-block with my improvements applied. Fig. 2 is a rear elevation of the same, partly in section, on the line of the through-shaft actuating the knees. Fig. 3 is a section on the line *y y*, Fig. 1; and Fig. 4 is a side elevation of the pawl-carrying lever, pawls, &c., for actuating the main driving-shaft.

My invention relates to a novel arrangement of through-shaft, and of gears connected therewith, for setting the log to be operated upon, whereby both ends of the log can be moved forward simultaneously and each time the same distance, or one end can be set in advance of the other, and then both be moved simultaneously and to a uniform distance; also to a novel arrangement of reversible double pawl for actuating the spur or ratchet wheel and moving the knees in either direction, as hereinafter explained.

In the accompanying drawings, A represents the supporting bed or frame, upon which are secured the transverse ways B B', in which the adjustable knees C C' move, the horizontal portions of said knees being provided on their lower faces with toothed racks, with which pinions *d d'* on a horizontal through-shaft, D, engage for actuating said knees. These pinions are provided each with twelve teeth or cogs, each being one inch in width, or having a pitch-line of one inch, in such manner that the movement of the pinion the distance of one tooth will cause the knees C C' to be moved forward or backward one inch. One of these pinions, *d*, is feathered or keyed directly to the shaft D, and moves with it, while the other, *d'*, is formed upon or connected with a sleeve, D', mounted loosely on the shaft D, and provided at or near its opposite end with a spur or ratchet wheel, E, of greater diameter than pinions *d d'*, and having forty-eight teeth. The outer face or end of the hub of the wheel E

has a clutch-face formed upon it, which engages with a corresponding clutch-face on a sliding disk or collar, F, which is feathered to the shaft D, and serves, when in clutch with the wheel E, to move the shaft with said wheel. The shaft D has a second collar, F', formed upon or secured to it, and between this collar and the sliding clutch F is a spiral spring, *f*, surrounding the shaft D, and serving by its tension to hold said clutch engaged with the clutch-wheel E. The hub of the clutch-collar F is grooved to receive a forked crank-arm, *g*, on the end of a transverse rock-shaft, G, mounted in suitable bearings on the bed or frame A, and provided at its opposite end with a foot-lever, G', by pressing upon which the attendant can throw the clutch-collar F out of engagement with wheel E, leaving the latter and the pinion, *d'*, connected therewith free to rotate on the shaft D without turning the latter. By this arrangement the knee C', which is operated by means of the pinion *d'*, can be set in advance of or behind the knee C when desired for giving a tapering cut, when, by releasing the lever G, the clutch-collar will again be thrown into engagement with the wheel E, and the knee will again be moved forward or backward together. The pinions *d d'* having each twelve teeth of one inch each on the pitch-line, each tooth will move the knees one inch, and for each revolution of the pinions the knees will be moved one foot; and the wheel E, connected with said pinions for actuating them, being provided with forty-eight teeth, or four teeth for each tooth on the pinion, it follows that the movement forward or backward of the wheel E the distance of one tooth will serve to move the knees one-fourth of an inch, thereby enabling the attendant to gage with precision the movement of the knees.

The wheel E is operated as follows, viz: H is a lever pivoted and turning freely on the shaft D or sleeve of wheel E, and in close proximity to said wheel, and on said lever is pivoted a shifting base, *h*, and a double pawl, I, connected therewith, as shown in Figs. 3 and 4. Springs *i i'* are interposed between the ends of the double pawl and its base plate or bar, which serve to allow the pawls to yield, when necessary, in backing them over the teeth of wheel E. The base plate or bar *h* is connected

by a link, h' , with one end of a horizontal lever, k , pivoted to lever H, near its upper end, and by rocking said lever the double pawl I can be vibrated for causing either end to en-
 5 gage with the wheel E. The lever H has a horizontal arm or projection, L, formed upon it, provided with a horizontal pin or spur, l , by means of which the lever k and double pawl can be held at either adjustment.

10 M is a rod connected with the upper end of lever H, and extending to any convenient point in reach of the attendant, for enabling him to vibrate lever H, and, through the pawl acting on wheel E, to actuate said wheel and the
 15 through-shaft and its pinions.

On the way B' is secured a perforated segment, N, formed in the arc of a circle, of which the pivot of lever H is the center, and a horizontal pin, h^2 , in the adjacent side of said lever moves over said segment in close proximity thereto. (See Fig. 2.) The holes in the segment are so arranged that by placing pins n n' therein at the required distance apart the throw of the lever H can be regulated at will—
 25 that is to say, the pins n n' can be so placed that in the backward throw of the pawl engaging with the wheel it will pass back over one, two, or more of the teeth of said wheel, as may be desired, and only that number at
 30 each backward throw of the lever. Consequently the wheel E will be moved forward the same distance at each vibration of the lever, thus enabling the attendant, after he has once set the pins n n' as desired, to move the knees
 35 forward a distance corresponding exactly to such adjustment at each vibration of the lever

H, and without further attention than merely to vibrate said lever to the extent of the adjusted throw.

The collar F and the hub of wheel E may 40 have numbers on their peripheries, to indicate the relation of the pinions d d' and the consequent relative adjustment of the knees.

Having now described my invention, I claim—

1. In a head-block for saw-mills, the through-shaft D, provided with the pinion d and the sliding clutch-collar F, in combination with the wheel E, secured to a sleeve on said shaft, carrying the pinion d' , and provided with a clutch 50 engaging the clutch-collar and through-shaft for operating the knees, substantially as described.

2. In a head-block for saw-mills, the combination, with the through-shaft and sleeve carrying the pinions actuating the knees, as described, of the ratchet-wheel E and the double pawl connected with the pivoted base-plate on the lever, for actuating said wheel and pinions, substantially as described. 60

3. The combination, in a head-block, of the double pawl I, its pivoted base h , and shifting lever k , with the lever H, vibrating around the through-shaft as a center, for actuating the wheel through which motion is imparted to 65 the pinions operating the knees, substantially as described.

WALTER J. F. LIDDELL.

Witnesses:

ALEXR. MAHON,
 JOHN G. CENTER.