3 Sheets—Sheet 1.

L. BUZZELL.

HEAD-BLOCKS FOR SAW-MILLS.

No. 174,061. Patented Feb. 29, 1876.

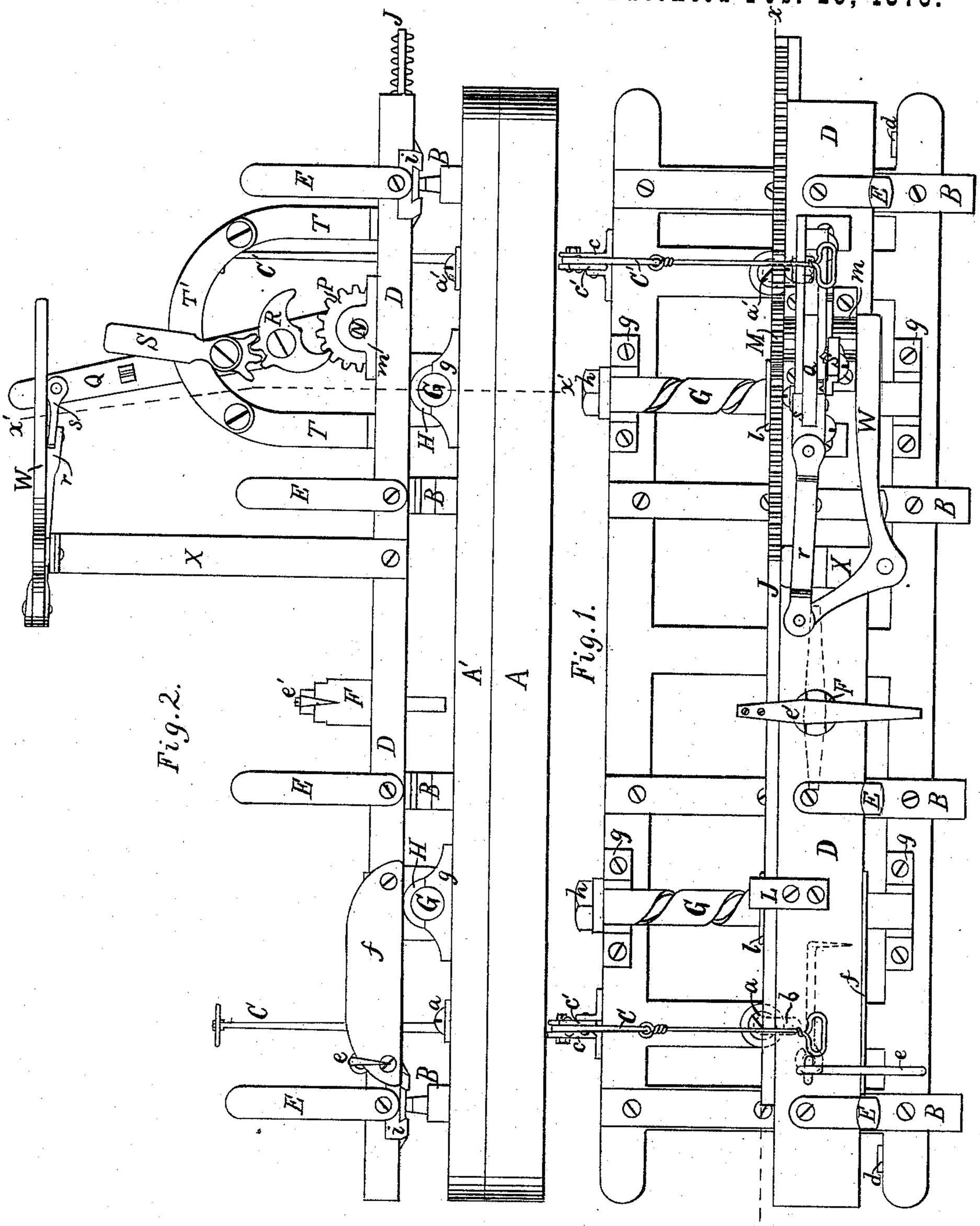

Fig. 1.

Fig. 2.

WITNESSES.

W. Wallace W. Swaze

D. C. G. Fields.

INVENTOR.

Luke Buzzell

3 Sheets—Sheet 2.

L. BUZZELL.

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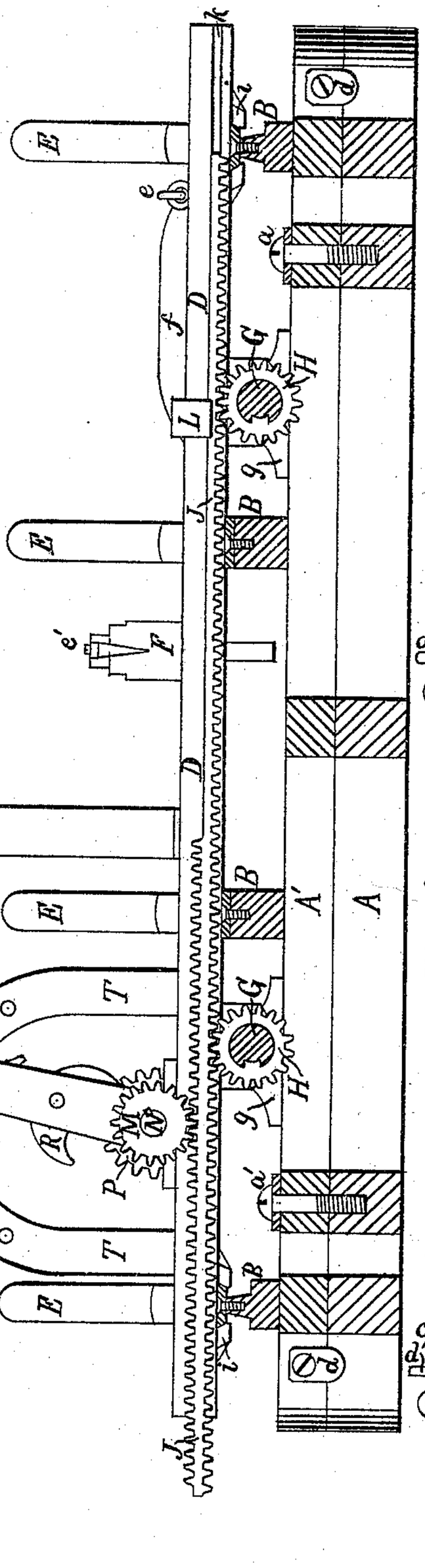

Fig. 3.

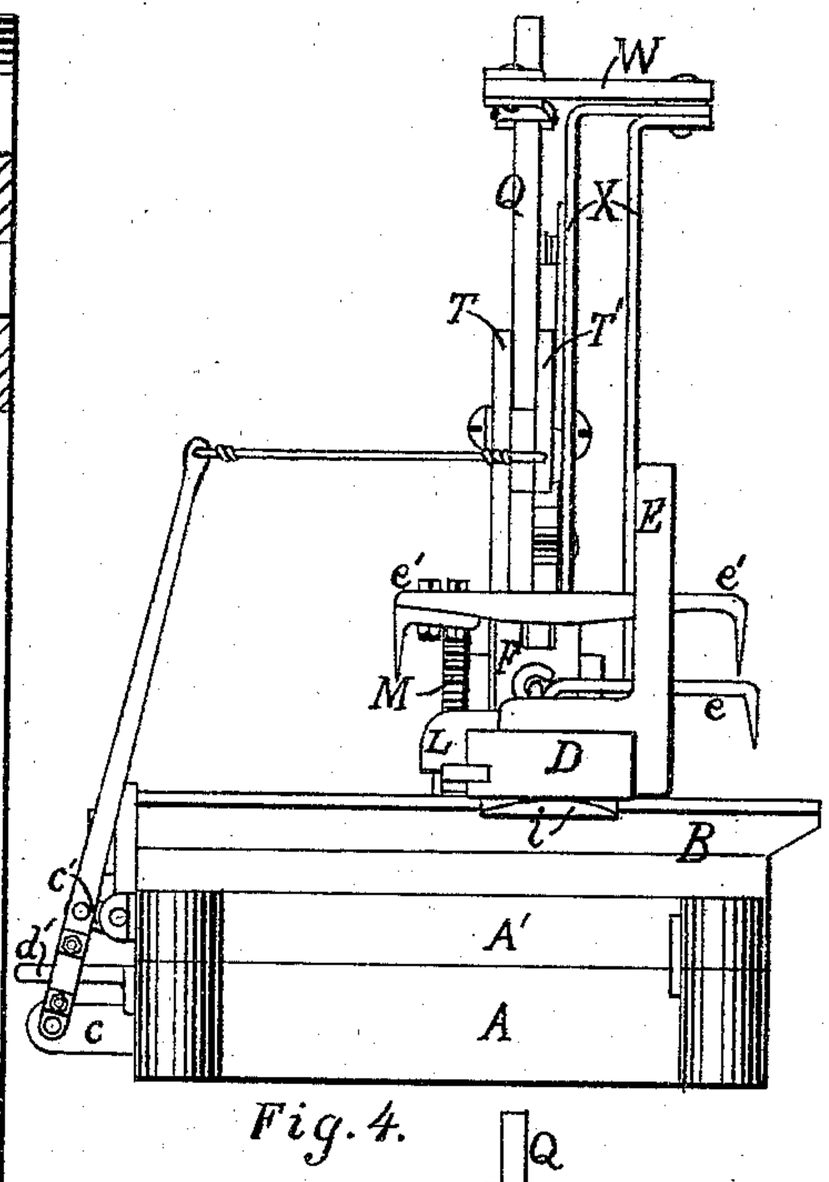

Fig. 4.

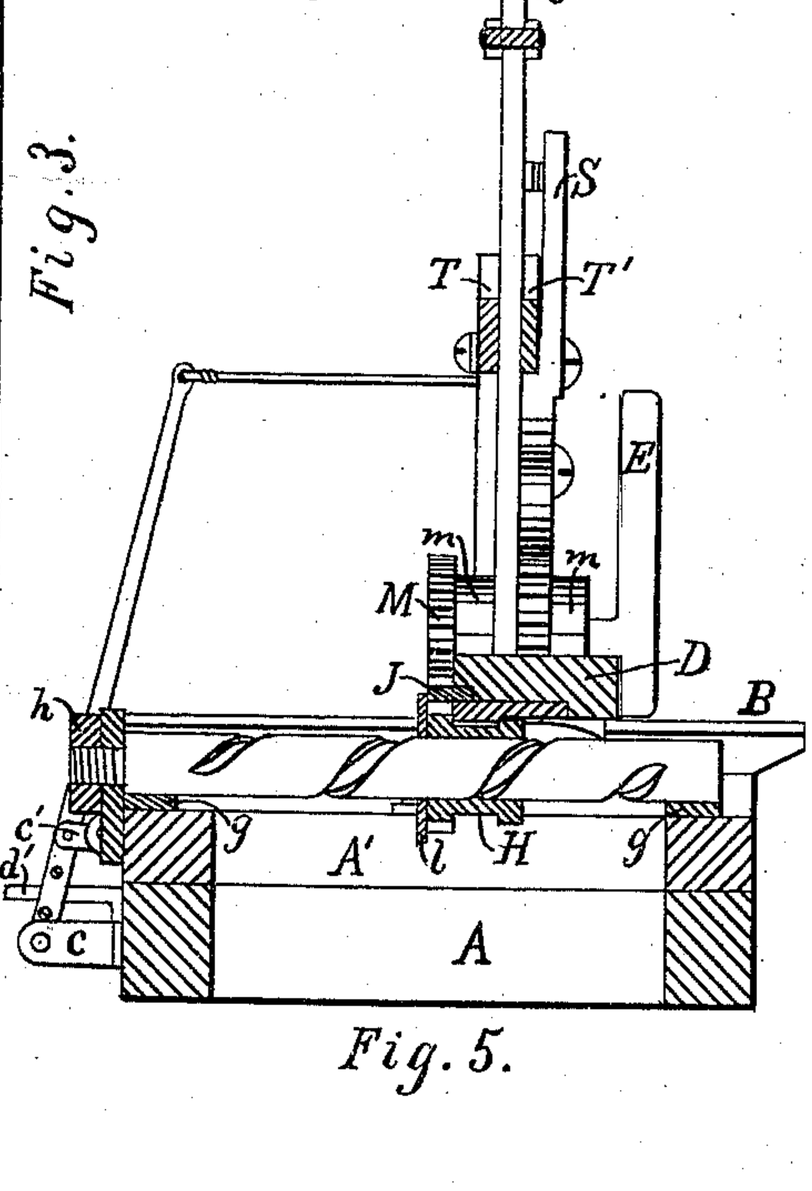

Fig. 5.

WITNESSES.

William W Swan

D. C. Sanford.

INVENTOR.

Luke Buzzell

3 Sheets—Sheet 3.

L. BUZZELL.

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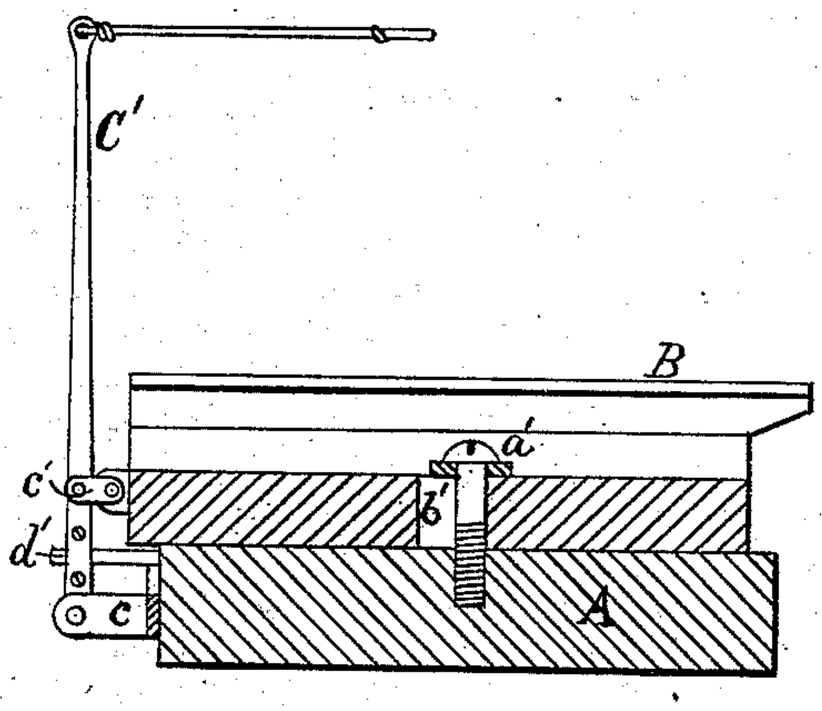

Fig. 1.

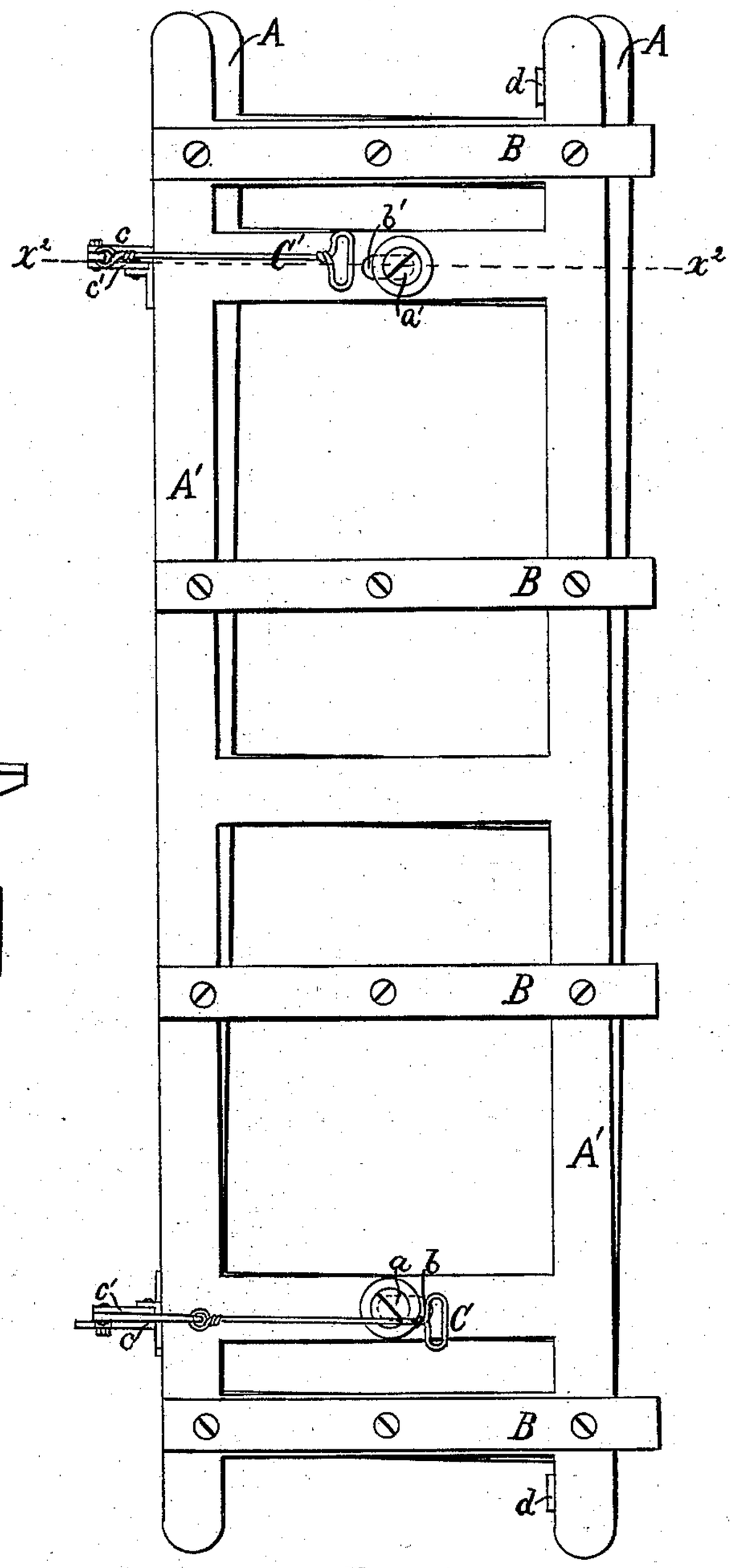

Fig. 6

WITNESSES.

William M Swan
D. L. S. Field

INVENTOR

Luke Buzzell

UNITED STATES PATENT OFFICE.

LUKE BUZZELL, OF ST. JOHNSBURY, VERMONT.

IMPROVEMENT IN HEAD-BLOCKS FOR SAW-MILLS.

Specification forming part of Letters Patent No. **174,061**, dated February 29, 1876; application filed March 31, 1875.

To all whom it may concern:

Be it known that I, LUKE BUZZELL, of St. Johnsbury, in the State of Vermont, have invented certain Improvements in Head-Blocks for Saw-Mills, of which the following is a specification:

My invention relates to the log-setting devices of saw-mill carriages; and consists in applying the force by which the set-beam is operated in such a manner as to do away with the torsion which results to mechanism employed when motion is imparted to the usual setting-up screws or setting-up racks by a revolving shaft, either fixed or traveling, placed parallel with the set-beam. It also consists in a device for sawing tapering stuff.

In the drawings, Figure 1 is a plan of the carriage embodying my improvements. Fig. 2 is a front elevation of the same. Fig. 3 is a sectional elevation through the line *x x* of Fig. 1. Fig. 4 is an end elevation. Fig. 5 is a sectional elevation through the line x^1 x^1 of Fig. 2. Fig. 6 is a top view of the carriage frame or truck proper, showing the tapering device. Fig. 7 is a sectional elevation through the line x^2 x^2 of Fig. 6.

A is the lower part of the carriage-frame. A′ is the upper part of the same. The carriage-frame is mounted on rails, and runs past the saw in the usual manner, the mechanism therefor being in connection with the under part A. B B B B are the head-blocks, upon which the log rests. They are secured to the upper part A′ of the carriage. This upper part swivels upon the lower part, either end of the upper part moving upon a pin, *a* or *a′*, near the other end, as a center. This swiveling of the upper part of the carriage allows the head-block upon which the log is held to be swung back, as shown in Fig. 6, out of parallelism with the saw, leaving one end of the log projected for the purpose of sawing tapering. A slot, *b b′*, allows either end of the part A to swivel on one of the pins *a* or *a′*, as the case may be. The swiveling is done by means of two bent levers, C and C′, one to be operated by the sawyer, and the other by his assistant. The bent levers are pivoted, as shown in Fig. 7, to projection *c* from the rear of the part A of the carriage, and are connected with the upper part A′ by links *c′*, as shown. Two stops, *d d*, are shown in Fig. 3, secured to the part A′ of the carriage-frame. When both stops are brought up against the part A of the frame the carriage is ready for parallel sawing. *d′ d′* are friction-bars, projecting from the rear of the part A, each passing through a slot in its lever, as shown in Figs. 4, 5, and 7. Their object is to make the swiveling just described more or less difficult, the amount of friction being regulated by increasing or diminishing the width of the slot. D is the set-beam, carrying the uprights E, against which the log rests. It carries also the dogs for dogging the log, *e e* being the common hook-dogs, and *e′* being a dog resembling the hold-fast of a carpenter's bench, but having two arms, each of which has a point, as shown. To keep the dog *e′* from falling too low, it works up and down and swings freely in a hollow part, F, which has a slot in the top lengthwise of the carriage, in which the arms of the dog may rest when not in use, as shown in dotted lines in Fig. 1. *f* is a fender or guard to keep the hook-dog from falling into the saw when not in use. The set-beam is secured to the head-block upon which it moves by flanges *i i*, in the usual manner.

The following is a description of the contrivance for operating the set-beam: G G′ are two screws, not revolving, but firmly fixed in supports *g g* upon the upper part A′ of the frame-nuts *h h*, assisting in keeping the screws in place, as shown. Traveling on these fixed screws are two female screws, H H. The outside of each of these female screws or traveling nuts is circular in form and doubly flanged, as shown. Projections from the under side of the set-beam, embracing the nuts between the flanges, as shown, cause the beam to travel with the nuts. One flange of each of the nuts H H is toothed, as shown. J is a rack-bar, having a longitudinal movement in a slot, *k*, in the rear edge of the set-beam. Throughout its entire length it has teeth on the lower side, as shown, into which the toothed flanges of the nuts H H mesh, as shown. The rack-bar J is kept within the slot *k* by a third flange, *l*, on each of the traveling nuts H, and by a piece, L, upon the set-beam, embracing the rack-bar. The upper side of the rack-bar has teeth for a part of its length, as shown, into

which mesh the teeth of a pinion, M, fixed upon a shaft, N, which revolves in bearings *m m* upon the set-beam. There is also fixed upon the shaft N a second pinion, P, properly notched for a setting-gear, and there is loosely secured to the shaft a lever, Q, to which is pivoted a double pawl, R, taking into the pinion or setting gear P, as shown. Either end of the pawl R is made to engage with the setting-gear P, as required, by means of a handle or lever, S, also pivoted to the lever Q, the lower end of the lever S forming a toothed sector, engaging with corresponding teeth on the double pawl, as shown. The lever S being turned to one side or the other causes the opposite end of the pawl to engage with the setting-gear, the weight of the handle keeping the pawl in position.

It will readily be seen that the forward-and-back movement of the loose lever Q will cause the set-beam to advance or retreat accordingly as one end or the other of the double pawl R engages with the setting-gear P. Upon the lever Q is a catch, *n*, to lock the handle S when it is desirable that neither end of the pawl engage with the setting-gear. The lever Q is made to work truly by a slouted guide upon the set-beam, consisting of two parts, T and T′, the part T′ being so fastened to the part T by screws as to form a slot between the parts. The lever vibrates therein, as shown.

The extent of motion of the setting-gear, to determine the thickness of the board to be made, is controlled by projections within the last-named slot, which are fixed in required positions by set-screws V V′ in a slot, *q*, and limit the movement of the lever Q to the right and left.

It is obvious that the pinion M, being properly cut, might be made to act as a setting-gear without the aid of the pinion P, in which case the rack-bar should be correspondingly cut upon its upper side, and the double pawl R should be pivoted upon the back side of the lever Q.

The novel feature of this setting mechanism just described is that the lever, pinion, and rack work lengthwise with the set-beam, instead of at right angles thereto, thereby imparting motion to the screws, which act directly upon the set-beam, without subjecting any part of the mechanism to torsion. Another not unimportant advantage resulting from the invention is that the width of the carriage may be much diminished.

In order that the sawyer may operate the setting mechanism in the more convenient way of pulling toward himself, a bent lever, W, is mounted, as shown, upon a post, X, the short arm of the bent lever connecting with the lever Q by two links, *r* and *s*, while the long arm serves for an operating-handle.

A further modification of the improvement described above, doing away with the usual torsion, but, by reason of multiplication of parts and greater friction, not as advantageous, would consist in placing the rack-bar and its operating mechanism in rear of the set-beam, and causing the rack-bar to act on fixed gears upon the rear ends of the screws G G′, said screw being made to revolve, while the nuts H H should be stationary. The modification of the handle W which would be required is obvious.

I claim—

1. The rack-bar J, reciprocating at right angles to the setting-screws, in combination with and operated by the setting mechanism, substantially as and for the purpose shown and described.

2. The combination of the head-block B, screw G, female screw H, set-beam D, and rack-bar J with the gear wheel or wheels on shaft N, and loose lever on same shaft carrying a double pawl, all arranged substantially as described, for the purpose specified.

3. The combination of the part A with the part A′ to form a carriage, the part A′ swiveling on the part A, substantially as described, for the purpose specified.

LUKE BUZZELL.

Witnesses:

WILLIAM W. SWAN,

D. C. G. FIELD.