

H. H. Gridley
Saw-Mill.

N^o 75678

Patented Mar. 17, 1868.

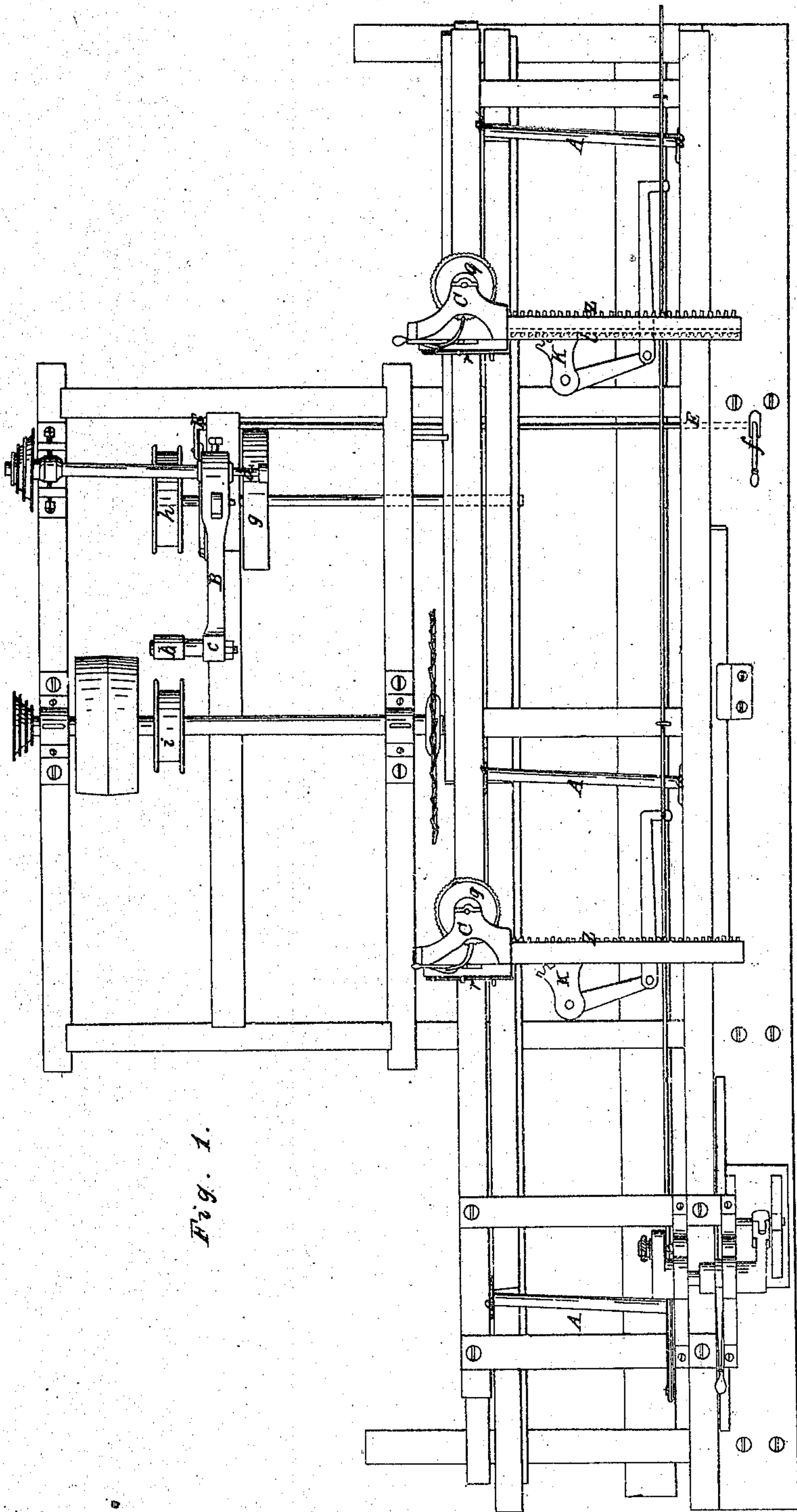


Fig. 1.

Witnesses.
D. Wright
W. P. Wright

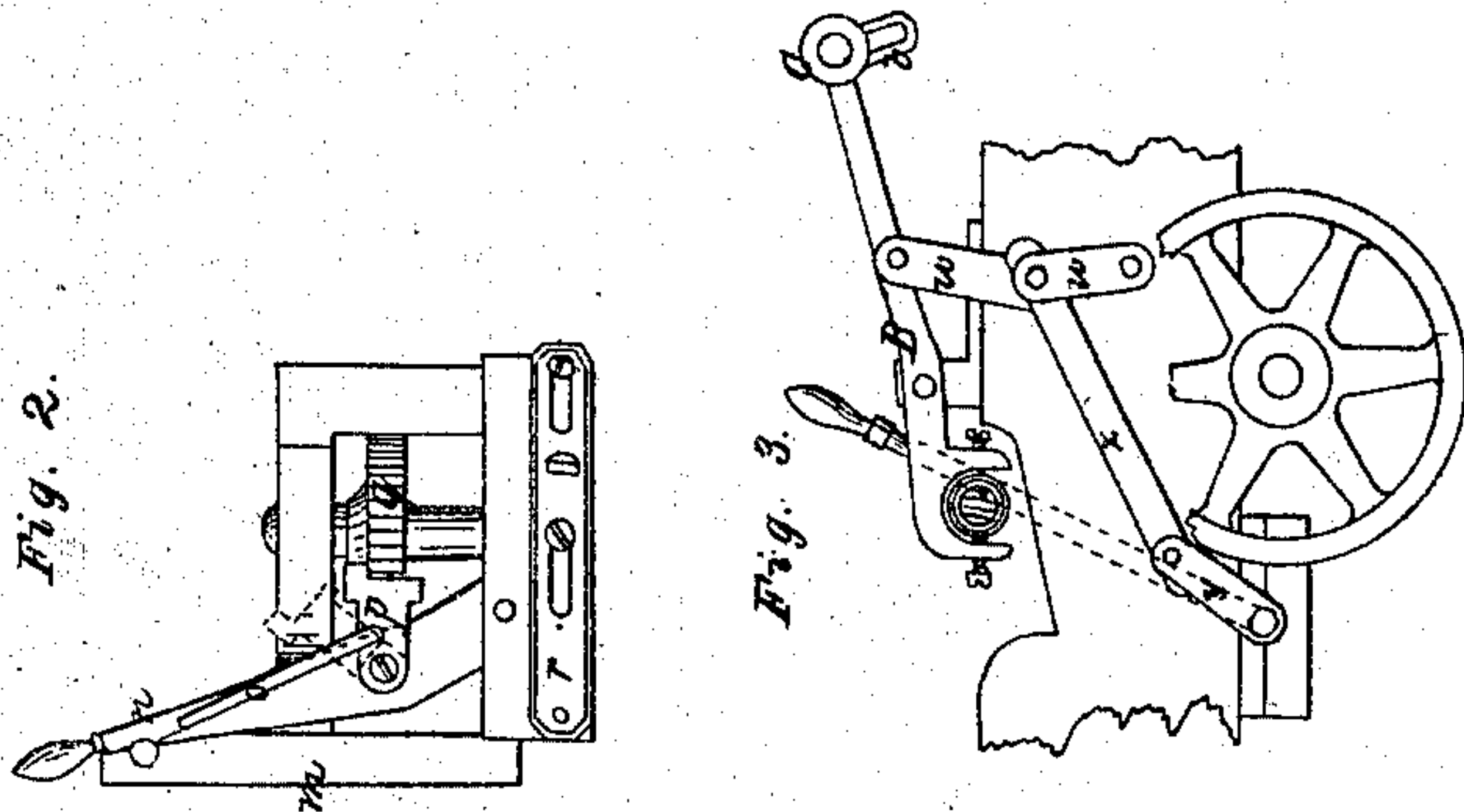
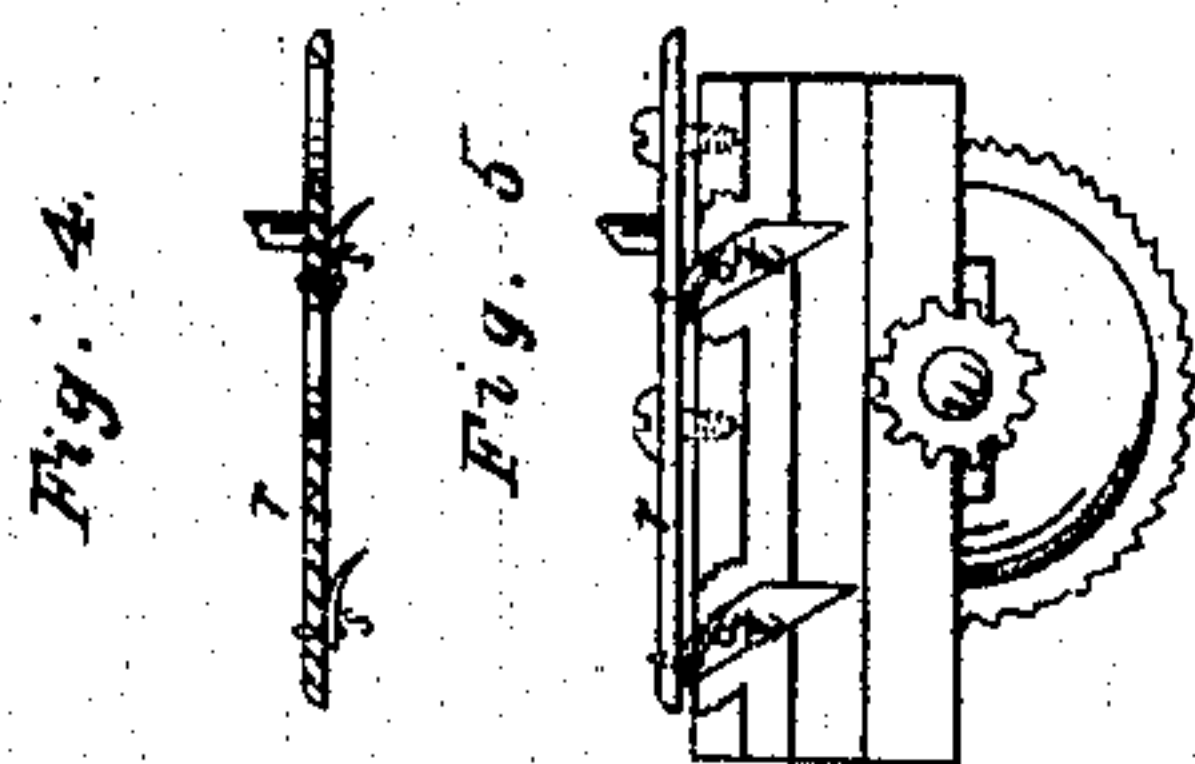
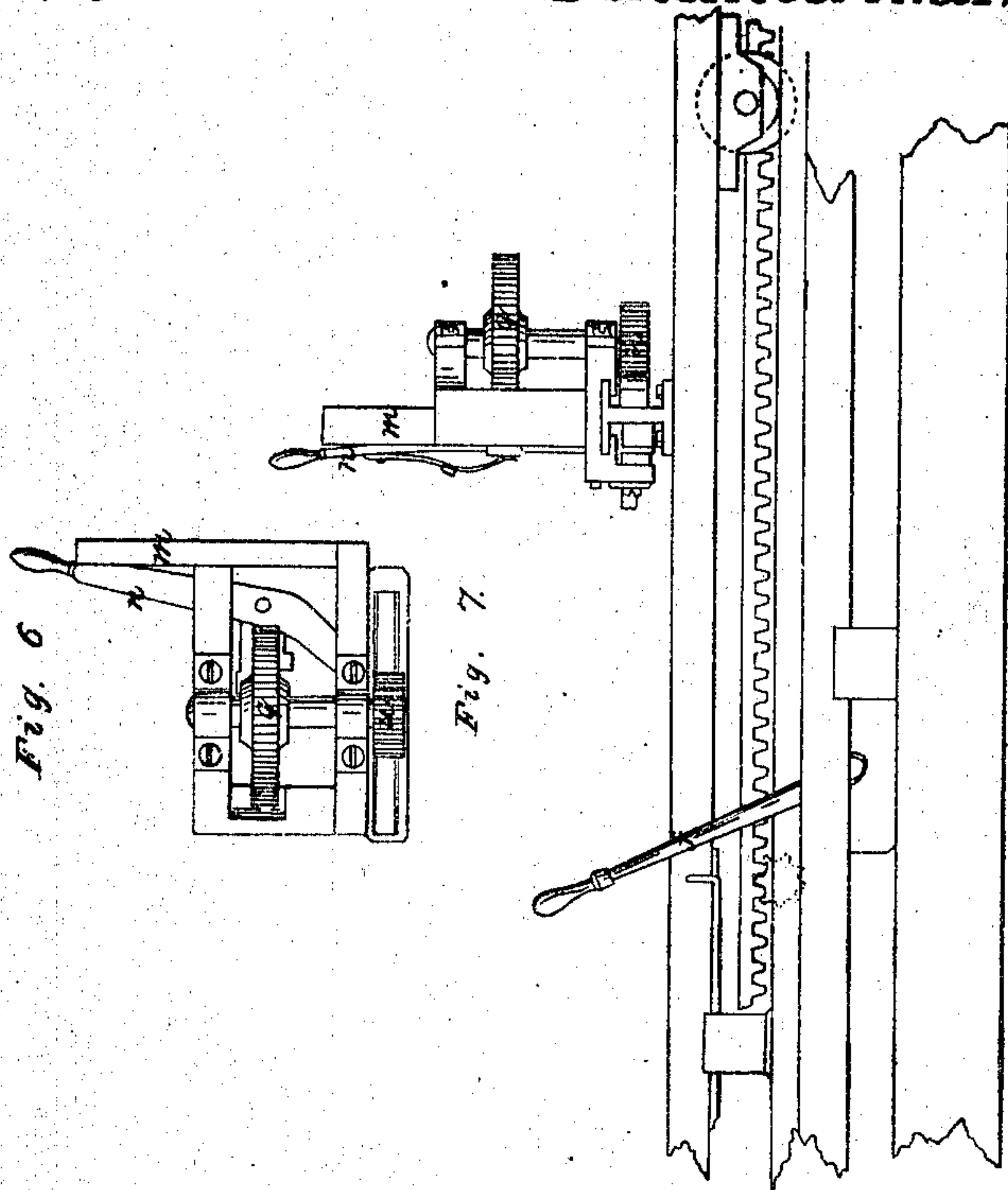
Inventor.
Henry H. Gridley

H. H. Gridley. Saw-Mill.

Sheet 2.

N^o 75678

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WITNESSES.

D. Wright
W. Wright

INVENTOR.

Henry H. Gridley

United States Patent Office.

HENRY H. GRIDLEY, OF AUBURN, NEW YORK.

Letters Patent No. 75,678, dated March 17, 1868.

IMPROVEMENT IN SAW-MILLS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HENRY H. GRIDLEY, of the city of Auburn, in the county of Cayuga, and State of New York, have invented certain new and useful Improvements in Saw-Mills; and I hereby declare that the following is a full, clear, and exact description thereof, and of the operations thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a bird's-eye view of the saw-mill.

Figure 2 is a side view of the head-block, as seen from the front end of the carriage.

Figure 3 represents the machinery for giving the reverse or gigging-back motion to the carriage.

Figure 4 represents the slide-bar, and the springs attached thereto.

Figure 5 represents a view of the under side of the head-block, with the dogs in position to catch between the teeth of the sliding rack.

Figure 6 represents a side view of the head-block, as seen from the rear end of the carriage.

Figure 7 represents a side view of a section of the carriage, when somewhat elevated from its support on that side.

The nature of my invention consists, first, in placing the carriage upon wheels made rigid with their axles, and so arranging the axles as that, when the carriage is moved or gigged back, the log will be moved or deflected laterally from the said wheels to any required distance, and prevent all scratching of the log by the saw, and all dulling of the saw-teeth when gigging back; second, in constructing and arranging the different parts of the rock-lever, so that one end thereof shall hold the friction-shaft, with its friction-pulley, and the other end thereof shall hold the tightening-pulley, and so constructing the head of said rock-lever as to enable the operator to change the height of the tightening-pulley, and thus accommodate it to the varying length of the backing-belt; third, in constructing and arranging mechanism so as to prevent the head-block from moving, when the automatic setting-apparatus is in motion, while gigging back, and enabling the operator, by means of the same mechanism, to move either head-block independent of the other; fourth, in constructing and arranging mechanism so as at all times, when desired, to secure the movement of the head-block towards the saw, when the automatic setting-apparatus is in motion, and the "set" is being given to the log.

In order to carry into practical operation the first part of my invention, I place bearings upon the under side of the carriage which carries the log, to receive the ends of the axles A. Upon each end of these axles I cast a wheel, *a*, with a flange upon the inner side thereof, to control the lateral movement of the carriage. Instead of setting these axles at right angles with the sides of the carriage, I set them slightly diagonal therewith, the ends thereof nearest the saw being slightly inclined toward the rear end of the carriage, so that, when the carriage is moving forward with the log, the flange upon the inner wheels will press steadily and firmly against the inside of the rail upon which that wheel is tracking, and thus keep the carriage steadily in its place while the saw is in operation; but as soon as the movement of the carriage is reversed in gigging back, this diagonal arrangement of the axles causes the carriage to deflect from the saw until the flanges of the outer wheels are caused to press against the inside of the rail upon which they are tracking, and thus the log is deflected from the saw, so that, when gigging back, the saw will not touch the side of the log, and all scratching of the log and dulling of the saw-teeth when gigging back are avoided.

In order to carry into practical operation the second part of my invention, I construct the rock-lever B with a swivel box, hung by set-screws upon the under side of the end thereof, which supports the friction-shaft *d*. I support said rock-lever upon the frame in the usual manner. Upon the other end, *e*, of this rock-lever, I attach a tightening-pulley, *b*, the stud whereof passes through this end, *e*, of the rock-lever, and is fastened thereto by a screw and nut. In order to permit this tightening-pulley *b* to be adjusted, so as to accommodate it to the varying length of the belt, I make the end, *e*, of my rock-lever, in the form of a slot, *v*, so that the stud of the tightening-pulley may be let down or raised up at the pleasure of the operator, and he can thus at any time vary the height to which the tightening-pulley can be raised, and thereby accommodate this pulley to the varying length of the belt, and prevent the necessity of lengthening or shortening the belt.

In order to carry into practical operation the third part of my invention, I construct my head-block with a ratchet-wheel, *g*, and pinion, *u*, upon the same shaft, which pinion engages with the rack *z*, said rack being

attached rigidly to the rear side of the beam upon which the head-block is supported. Upon the front side of the head-block I attach the hand-lever *n*, and to that I attach the pawl *p*, which may be made to engage with the teeth of the ratchet-wheel *q*, or may be detached therefrom at pleasure. To the side of this hand-lever *n* I attach the spring *o*, which, by its pressure upon the pawl *p*, keeps it in its place when it is intended that it should engage with the teeth of the said ratchet-wheel *q*.

The effect and operation of this machinery and its arrangement are as follows: When the automatic setting-apparatus is in motion, as the carriage is giggered back, the pawl *p* engages with the teeth of the ratchet-wheel *q*, and prevents that wheel from turning, and thus preventing the head-block from being moved backwards.

By this same mechanism, as thus arranged, either head-block may be moved forward, by the use of the hand-lever *n*, independent of the other, and this operation is performed as follows: The pawl *p* being in its place, engaged with the teeth of the ratchet-wheel *q*, and being held in its place by the spring *o*, when the hand-lever is moved from the saw, it causes the pawl *p* to press against and turn the ratchet-wheel *q*, and therefore the pinion *u* engages with the rack *z*, which being fixed rigidly to the beam upon which the head-block slides, the head-block is moved toward the saw, and thus the operator may at any time "set" the log at either end, independent of the other.

In order to carry into practical operation the fourth part of my invention, I extend the front side of my head-block downwards, so as to admit of placing therein the dogs *t*. (In a full-sized head-block four are generally used.) I cut out pieces from said extended portion, so as to admit these dogs, and allow them sufficient room to play easily therein. I then insert therein the dogs *t*, hung upon a pin inserted through them, forward of the centre thereof. Upon the front side of the beam upon which the head-block is supported, I place a sliding rack, *l*, with teeth upon the outer face thereof, the centre of each tooth being one-fourth of an inch from the centre of the tooth next thereto. Under the centre of this slide rack *l*, and attached rigidly thereto, I place an auxiliary rack, with seven teeth thereon, to be engaged with the segment-pinion *k*. Upon the end lever or arm, which is moved by the automatic setting-apparatus, I attach a segment-pinion, *k*, which engages with said auxiliary rack. Over the dogs *t* I place the slide-bar *r*, and upon this slide-bar are rigidly attached the springs *s*, corresponding in number with the dogs *t* intended to be used, and each so located as when the slide-bar *r* is moved to its fullest extent towards the saw, the springs thereto attached will each press against that part of the dog with which it comes in contact, and which it is intended to govern, so as to press its dog away from the sliding rack *l*, and thus prevent it from engaging therewith. But when said slide-bar is moved to its furthest extent in the opposite direction, the springs thereto attached will each press against that part of the dog with which it comes in contact, so as to press the end of its dog against said slide-rack *l*, and thus permit the end thereof to fall between the teeth upon said rack *l*; but I so locate these dogs *t* that no two of them shall ever be engaged between the teeth of the slide-rack *l* at the same time, and thereby rendering it certain that said slide-bar *l* can never be moved for a greater distance than the one-sixteenth of one inch without letting the end of one of these dogs pass between the teeth upon said bar, unless when said dogs are pressed back from said slide-bar.

The operation of this mechanism, as thus arranged, is as follows: When the automatic setting-apparatus is in motion, as the carriage is moved forward, the end lever or arm, to which the segment-pinion *k* is attached, is moved towards the saw, and its teeth engage with the teeth of the auxiliary rack attached to the under side of the slide-rack *l*, and move said slide-rack *l* towards the saw; and if one of these dogs *t* is at the same time engaged between the teeth upon the said slide-rack *l*, the head-block must necessarily be moved to the same extent as the slide-rack *l*; but if the said dogs *t* shall all be disengaged from said slide-rack *l*, the head-block will remain unmoved. When it becomes necessary to move the head-block from the saw, the pawl *p* is disengaged from the ratchet-wheel *q*, the slide-bar *r* is moved to the full extent toward the saw, and the dogs *t* thus prevented from engaging between the teeth of the slide-rack *l*, and hence the head-block will then be free to be moved in either direction.

For a description of the other parts of my saw-mill, reference is hereby made to the specifications and drawings annexed to Letters Patent granted to me for improvements in head-blocks for saw-mills, bearing date the first day of May, 1866, and numbered 54,330.

Having thus described the component parts of my invention and their several functions, and also the mode of operation and effect thereof, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination of the lever *f*, shaft *E*, and its connecting-links, with the pivoted arm *B*, carrying in a slot the adjustable box, with the friction-shaft *d*, and the adjustable stud of the tightening-pulley *b*, all constructed and operating substantially as described.

2. The combination of the slide-bar *r*, with its springs, *s*, and the dogs *t*, with the slide-rack *l*, substantially as and for the purpose described.

3. The combination of the segment-pinion *k*, upon the end of the lever or arm of the automatic setting-apparatus, with the auxiliary rack under the sliding rack *l*, substantially as and for the purpose described.

HENRY H. GRIDLEY.

Witnesses:

D. WRIGHT,

W. P. WRIGHT.