(No Model.)

2 Sheets—Sheet 1.

F. M. COVELL.

MACHINE FOR SAWING AND GROOVING SHAKES.

No. 256,464. Patented Apr. 18, 1882.

Fig. 1.

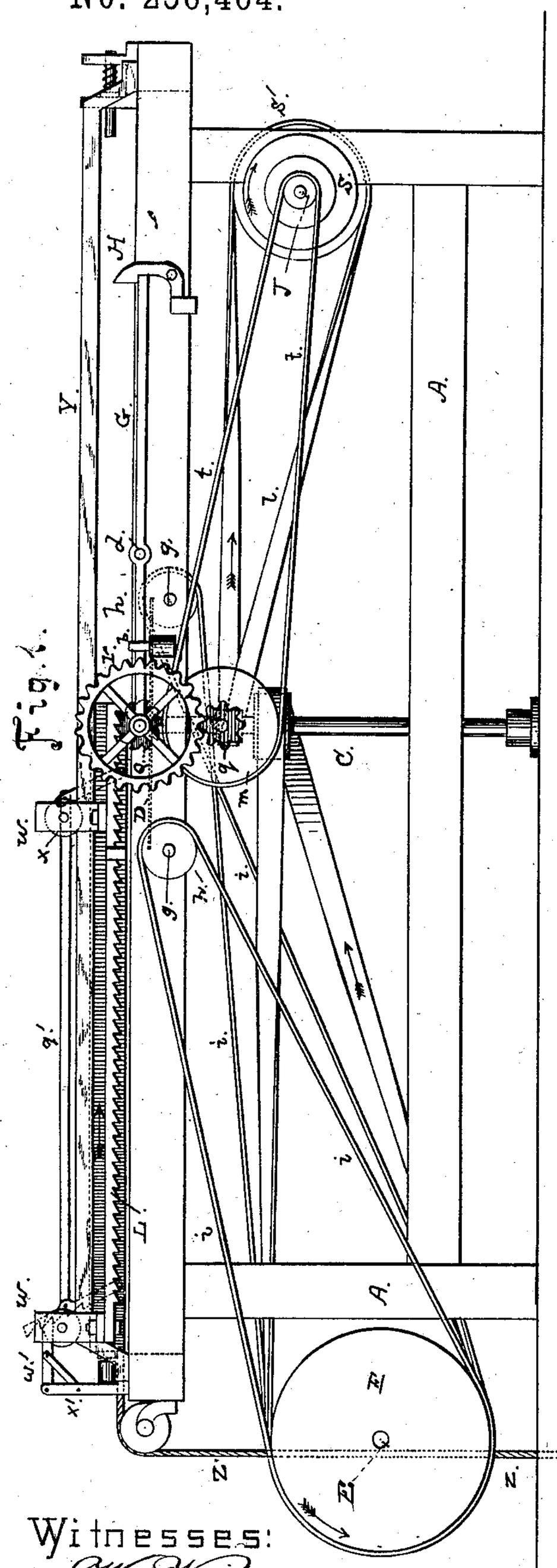
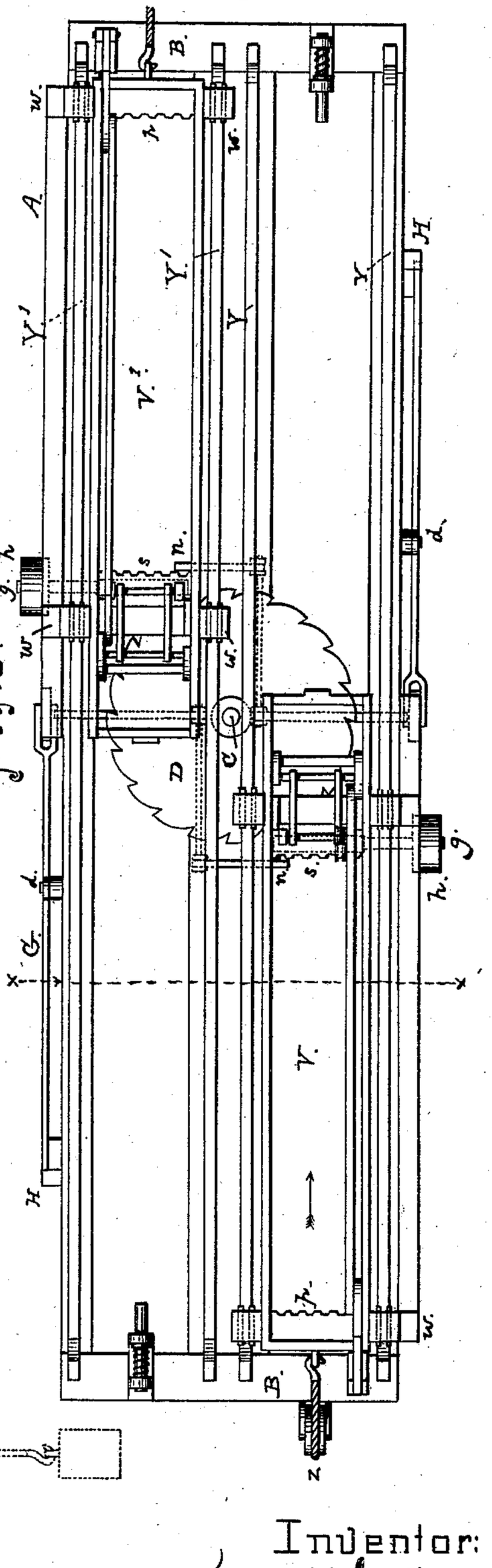


Fig. 2.



Witnesses:
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W. F. Clark

Inventor:
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By his Attys. Coes & Coleman

(No Model.) 2 Sheets—Sheet 2.

F. M. COVELL.

MACHINE FOR SAWING AND GROOVING SHAKES.

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Fig. 3.

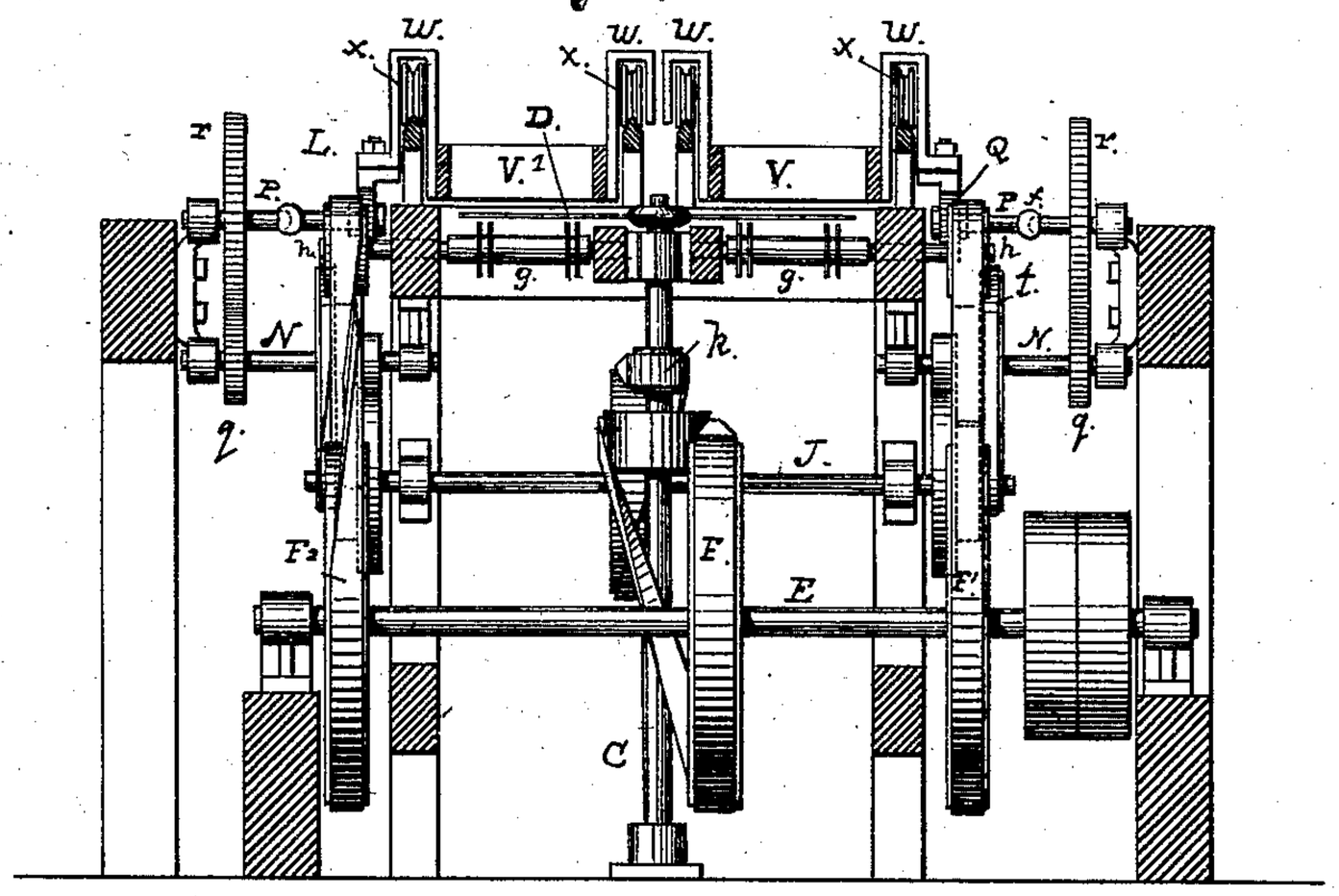


Fig. 4.

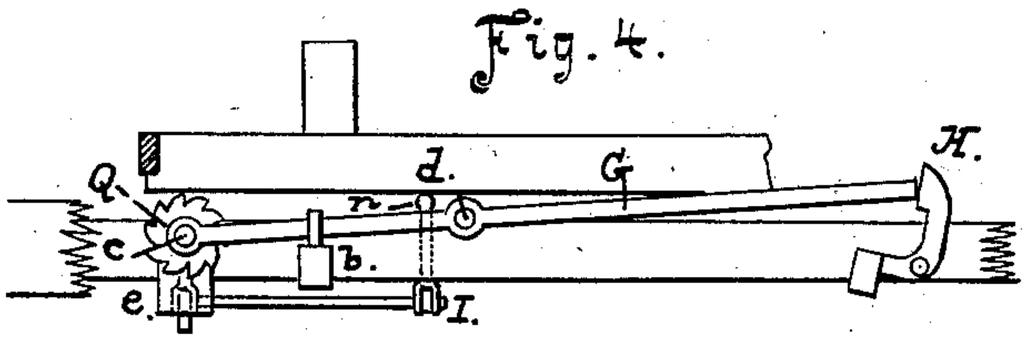


Fig. 5.

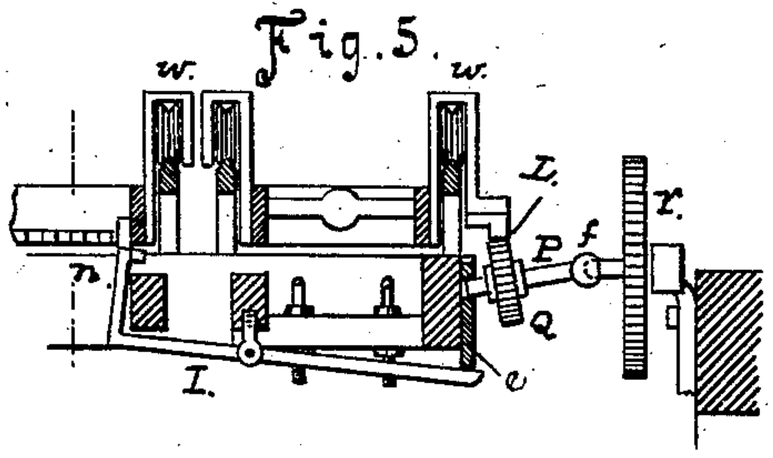


Fig. 6.

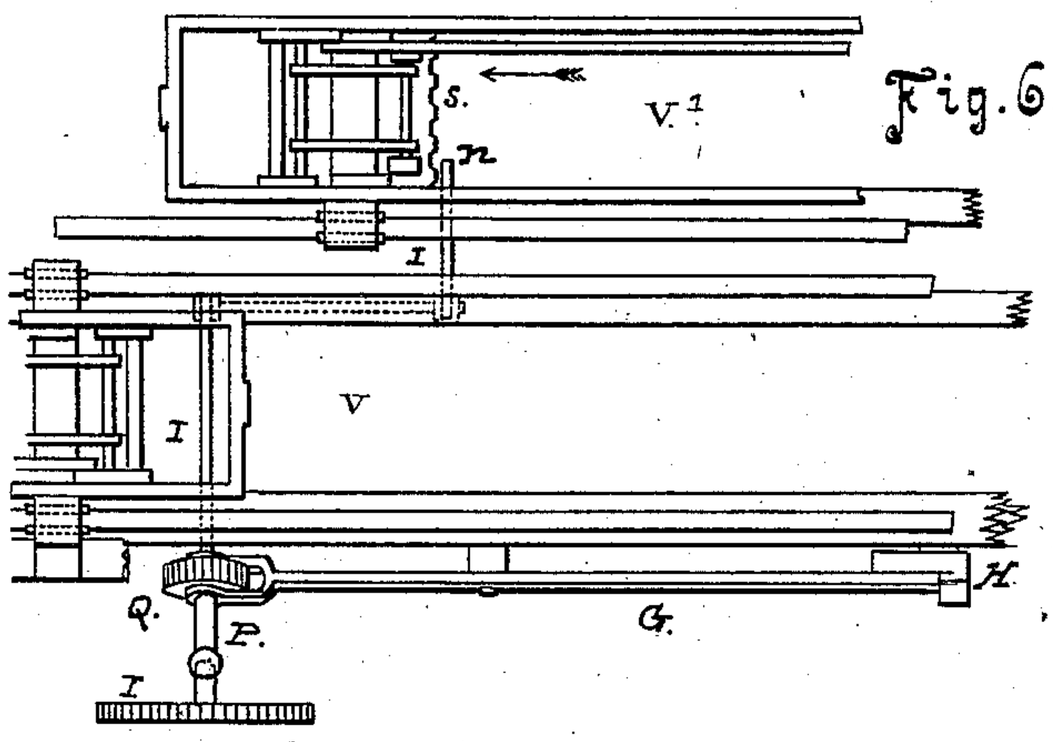


Fig. 7.

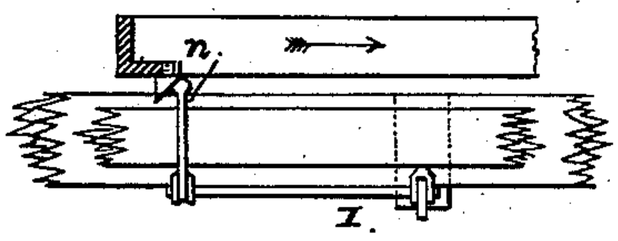
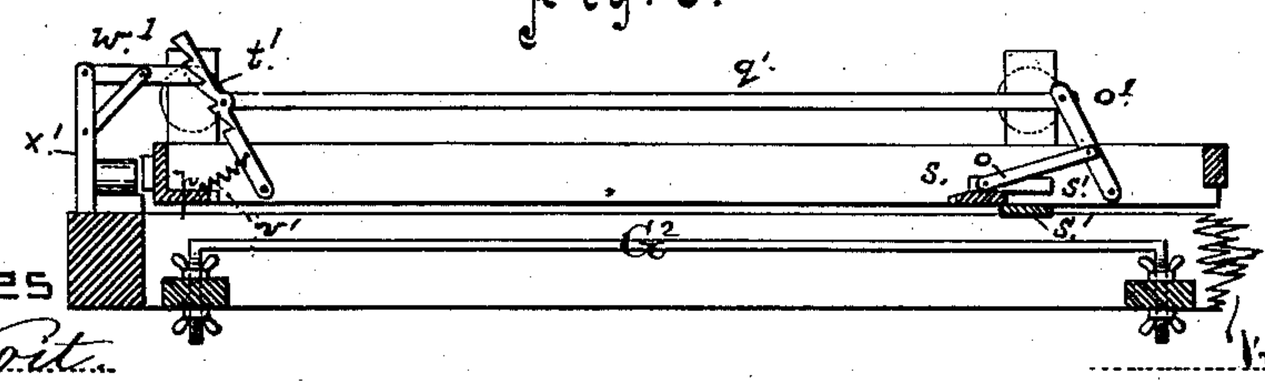


Fig. 8.



Witnesses

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W. D. Clark.

Inventor

Frank M. Covell

By his Attys., Baker & Baker,

UNITED STATES PATENT OFFICE.

FRANK M. COVELL, OF GLENWOOD, ASSIGNOR TO ADOLPHUS GERMON, OF SAN FRANCISCO, CALIFORNIA.

MACHINE FOR SAWING AND GROOVING SHAKES.

SPECIFICATION forming part of Letters Patent No. 256,464, dated April 18, 1882.

Application filed May 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. COVELL, of Glenwood, Santa Cruz county, State of California, have made and invented certain new and useful Improvements in Machines for Sawing and Grooving Shakes; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the accompanying drawings.

My invention has reference to machinery for cutting and finishing shakes from a block or bolt.

It relates to the combination, with a horizontally-running circular saw, of two bolt-carrying frames or carriages having a reciprocating movement in a right line in directions opposed to each other, so that they work one on each side of the saw and move alternately or one in advance of the other against it, and of certain automatic feeding mechanism combined therewith for producing the alternate movement of the carriages, and for feeding down the bolts at the end of each backward movement of the carriage to give the required thickness to the shake.

It relates, also, to the general construction and combination of parts and mechanism whereby the machine is rendered adjustable and made capable to perform a variety of work, all of which will be more fully set forth hereinafter.

In the accompanying drawings herein referred to, Figure 1 is a side elevation of my improved machine. Fig. 2 is a plan view. Fig. 3 is a cross-section through the lines *x x*, Fig. 2. Figs. 4 and 5 are detail views, showing the feeding mechanism and the means by which it is automatically thrown out of gear. Figs. 6 and 7 show the mechanism by which the feed of one carriage is thrown into gear from the movements of the other carriage. Fig. 8 shows the device for feeding down the block or bolt in the carriage.

A A B represent any suitable frame-work, in which are bearings for the several shafts and spindles that actuate the feed mechanism and run the cutting and finishing tools.

C is the upright spindle that carries the circular saw D, and E is the principal driving-shaft, on which are the three large band-wheels or sheaves F F′ F². The center one of these sheaves, F, runs the saw-spindle C, while the others, F′ F², give motion to the short mandrels *g g* that carry the grooving or finishing tools. Small pulleys *h h*, fixed on the ends of these mandrels, receive the belts *i i*. This one shaft E therefore gives motion to all the cutting and finishing tools for working up the block or bolt.

The feeding mechanism is operated from the counter-shaft J, which is driven from a small pulley, *k*, on the saw-spindle, and the belt *l* running thence to the sheave S′; but as the speed of the spindle is much greater than could be used for the feed, I gear the small shaft N into the feed-pinion shaft P by employing the gear-wheel and pinion *q r*, and thus reduce the motion of the feed-pinion Q. This motion, however, can be increased or diminished by using the cone-pulleys S S′, from which run the belts *t t* up to the sheaves *m* of the short shafts N.

The bolt-carrying frames or carriages V V′ are arranged one on each side of the machine, so that, the saw being in the center, the carriages approach and pass over it on opposite sides and in different directions, or each against the cutting movement of the saw. The carriages consist of a rectangular frame, with boxes or bearings *w w* to hold the V-shaped or flanged wheels X X, that support the carriage on the rails Y Y′, and with a clamping device to confine the bolt and hold it in place at the required distance below the level of the frame to receive the cutting and finishing action of the tools. Each carriage V or V′ has its separate track or set of rails Y or Y′, and they are set at a slight inclination, so as to run the carriage during the feeding movement on a slight ascending grade, which is required for producing the slanting cut of the shake from the bolt, and which could not be effected otherwise without running the saw out of a horizontal plane. To give this inclination of the cut, therefore, I set up the forward ends of each set of track or rails in cutting shakes. This feature is not shown in the drawings. Upon the side of each carriage, and in line with the pinion Q, is a fixed rack, L, that when in gear with this pinion causes the carriage V to move

regularly forward and feed the bolt against the saw, and when the pinion is disengaged therefrom it leaves the carriage free to be drawn back by the operation of the cord and weight Z, attached to the rear end of the carriage and running over a pulley on the outside of the frame.

In order to throw the feed-pinion Q into and out of gear at the required times, I employ the construction and combination of parts shown in detail in Figs. 4 and 5, and operating as follows: The pinion Q is fixed on a short shaft, P, which is connected by means of a knuckle-joint, *f*, with the shaft of the gear-wheel *r*, so that the pinion can have a short vertical movement toward and away from the rack of the carriage. The other or free end of this pinion-shaft is held in a sliding box or bearing, *e*, on the side of the frame A, so that by means of the lever G, pivoted to the side frame at *d* and attached at the end *c* to the shaft, this pinion can be moved up and down and thrown into and out of gear with the rack L. The pinion Q is held normally out of gear by means of the counter-weight *b* upon the lever, and it is held up in gear by the tripping-catch H on the side of the frame. When the longer end of the lever G is depressed it engages with the notched end of the catch H and is held down by it, so that the pinion will be in gear with the rack L and the carriage will be fed forward as long as this condition of the parts continues. This catch H, however, is so placed that the end of the carriage shall strike it when the end of the cut made by the saw is reached, and by throwing it back from the end of the lever G at this time the pinion Q is caused to drop down out of gear with the rack. In this manner each carriage automatically and instantly disengages itself and stops its feed movement at the end of the cut.

To throw the feed mechanism of the carriage into gear, I employ the device shown in Figs. 6 and 7 as a simple means for causing one carriage to throw the other one into operation. By means of a pivoted lever, I, fixed on the under side of the frame below the carriages, and attached at one end to and beneath the sliding bearing *e* of the pinion Q, I cause the opposite carriage to lift the pinion Q upward into position and in gear with the rack L and throw the end of the lever G by the same movement underneath the catch H. This lever I, while connected with the sliding bearing of one pinion, Q, extends across the machine to the other carriage, so that the upright arm *n* on the end of the lever shall project in the path of the carriage to be struck and forced down by it at the proper moment, and in this manner throw the feed of the other carriage into gear. One carriage, therefore, is made to control the movements of the other carriage and set its feed in motion at the proper time to present its bolt to the saw as the bolt of the first carriage is moving away from the saw, this being effected by setting the levers I at a point in the path of the carriages, which is at or near the end of the forward movement of each carriage, so that the feed movement of one carriage takes place as the similar movement of the other carriage is being completed, and the saw is not subjected to the double work and strain of cutting into both bolts at once during the heaviest part of the work, but only during the beginning of the cut in one bolt and the termination of the cut in the other bolt.

Each carriage is provided with a clamping device for holding the bolt in place while being fed to the saw, and in connection therewith an adjustable tripping mechanism for releasing the bolt and allowing it to drop down upon the gage-bar G^2 at the end of each backward movement of the carriage. This is clearly shown in Fig. 8 of the drawings.

At one end of the carriage is a fixed jaw, *p*, upon a cross-bar at the bottom, and at the opposite end a movable jaw, *s*, which can slide back and forth in guides *s' s'*. This jaw *s* is held and operated by the bar *o*, the lever *o'*, the connecting-rod *q'*, and the lever *t'* at the opposite or rear end of the carriage. By means of the spring *v'*, connected to the lever *t'*, the sliding jaw is moved and held against the end of the bolt, so as to clamp it firmly in place within the carriage, and by means of the stop *w'* on the upright arm *x'* the lever *t'* is pressed back as the carriage reaches the end of its backward movement and the bolt released from the jaws *p s* and allowed to drop down upon the gage-bar G^2. The forward movement of the carriage, when it takes place, draws the lever *t'* away from the stop *w'* and permits the spring *v'* to bring the jaw *s* against the end of the bolt, and thus clamp it in place within the carriage.

The finishing-tools are those driven or operated by the shafts or mandrels *g g*, and acting upon the under side of the shake or stuff cut from the bolt by the saw. In the machine shown in the drawings these mandrels are provided with grooving-saws for cutting the grooves in the shakes; but by slipping them off the mandrel and substituting planer-heads the machine can be made to plane or finish the under surface of the cut stuff. The machine can be adjusted also to cut laths from the block or bolt by simply fixing a set of small circular saws at equal distances apart upon the mandrel, so as to divide the cut slab or piece by a number of vertical cuts and separate it into strips of the required width.

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

1. In a machine for cutting and finishing shakes and other articles from a block or bolt, the combination together of the horizontally-running circular saw, the tool-carrying mandrels *g g*, the reciprocating carriages V or V' for holding and feeding the bolts in an alternate manner, or one in advance of the other upon opposite sides of the saw, the intermittent feed device Q L G H, and the mechanism for throw-

ing the feed of one carriage into gear from the movements of the other carriage, all substantially as herein described, to operate as set forth.

2. In combination with the saw and the traveling carriages having feed-racks on them, the pinions Q, the sliding bearings of their shafts, the levers I, having upright arms arranged to project in the paths of the carriages, the lever G, and its catch H, substantially as described.

Witness my hand and seal.

FRANK MARION COVELL. [L. S.]

Witnesses:
MORGAN COVELL,
W. H. COVELL.