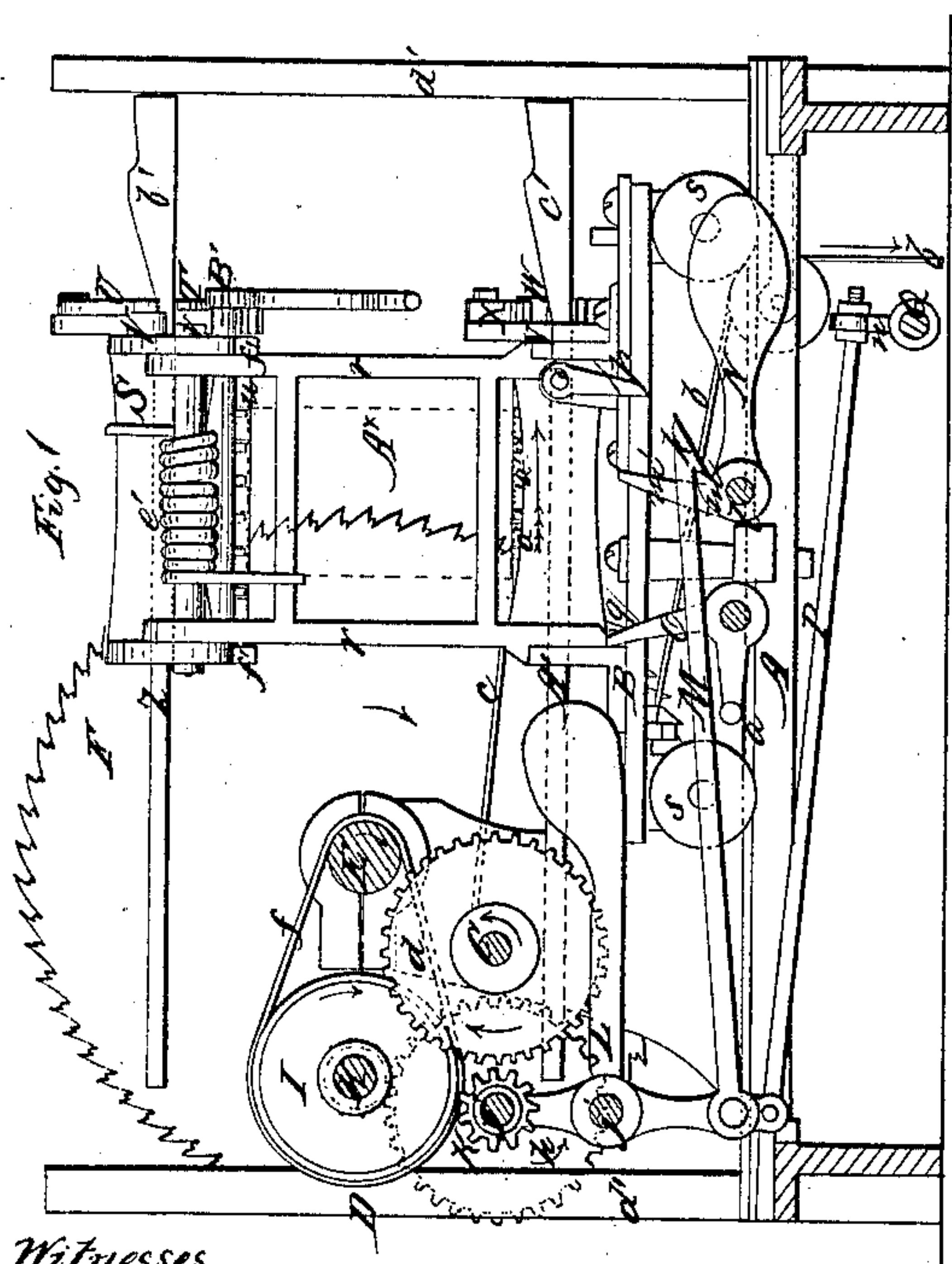
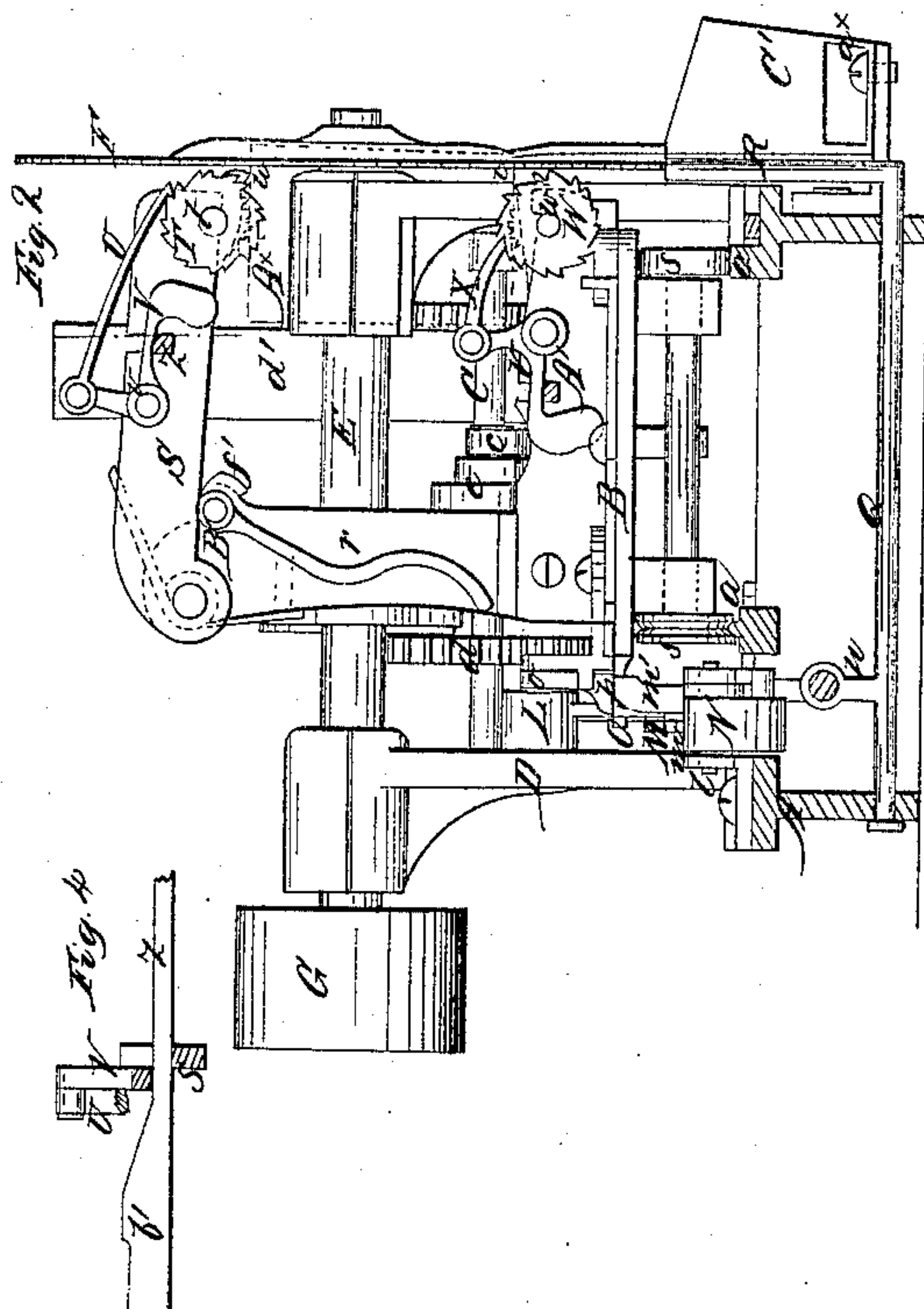


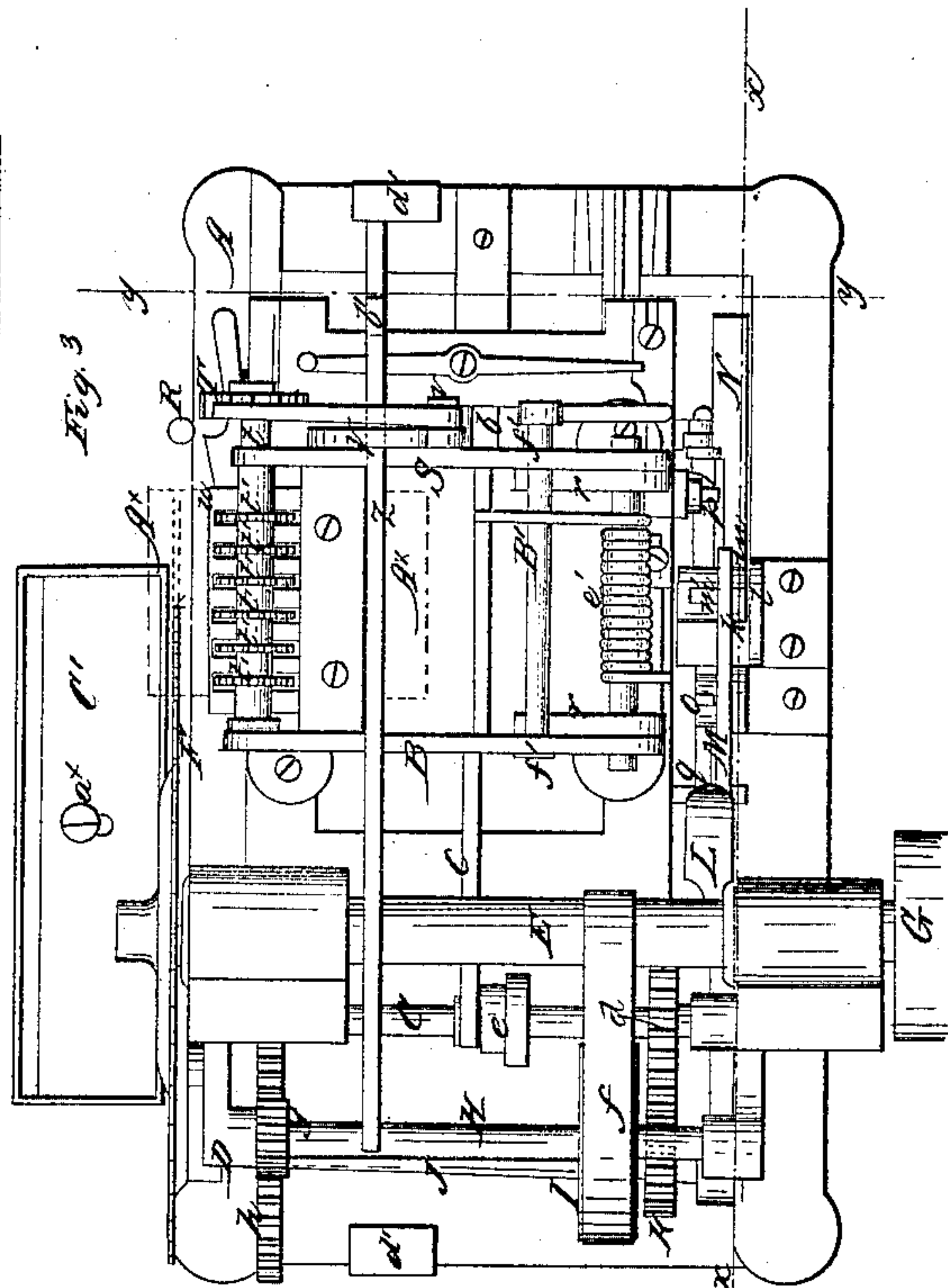
J. R. Hall,
Sarring Shingles.

N^o 29,967.

Patented Sep. 11, 1860.



Witnesses.
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UNITED STATES PATENT OFFICE.

J. R. HALL, OF BRUNSWICK, MAINE.

IMPROVED MACHINE FOR SAWING OUT SHINGLES.

Specification forming part of Letters Patent No. 29,967, dated September 11, 1860.

To all whom it may concern:

Be it known that I, J. R. HALL, of Brunswick, in the county of Cumberland and State of Maine, have invented a new and Improved Shingle-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention taken in the line *x x*, Fig. 3; Fig. 2, a transverse vertical section of the same, taken in the line *y y*, Fig. 3; Fig. 3, a plan or top view of the same; Fig. 4, a detached sectional view of a portion of the bolt-adjusting mechanism.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain improvements in a machine for sawing shingles, for which Letters Patent were granted to me bearing date June 22, 1858.

The within-described invention consists in an improvement in the mechanism employed for feeding the bolt-carriage to the saw and gigging back the same, and also in an improvement in the means employed for adjusting the bolt relatively with the saw for the purpose of giving the desired taper to the shingles.

The object of the invention is to simplify and render the machine more efficient than hitherto and without the liability of getting out of repair.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a rectangular frame or bed, on which there are two parallel ways, *a a*, for a bolt-carriage, B. This bolt-carriage has a strap, *b*, attached to it, to which a weight is connected, and to the front end of the carriage there is attached a strap, *c*, which is connected to a shaft, C, placed in a framing, D, on the bed A. The shaft C has a toothed wheel, *d*, on it, and also a cone of pulleys, *e*, to either of which the strap *c* may be attached.

In the upper part of the framing D there is placed a shaft, E, which has a circular saw, F, on one end of it and a driving-pulley, G, on the opposite end. On the upper part of the framing D there is placed a shaft, H, which has a pulley, I, on it, around which a belt, *f*,

passes, said belt also passing around the shaft E. On the shaft H there is also placed a pinion, *g*, which gears into a wheel, *h*, on a shaft, J, immediately below it, said shaft J having a pinion, K, on it, which pinion is directly opposite the toothed wheel *d* on the shaft C.

One end of the shaft H is in a fixed bearing, the opposite end of the shaft having its bearing in the outer end of a T-shaped lever, L, which has its fulcrum at *j*. The inner end of the lever L is loaded, or is made sufficiently heavy, so as to keep, when permitted, the pinion K in gear with the wheel *d* of shaft C.

To the lower end of the front part of lever L there is attached a rod, M, the back end of which has a catch, *k*, on it, as shown clearly in Fig. 1.

On the frame or bed A there is placed a loaded swinging arm, N, *l* being its axis. This arm has a projection, *m*, on it near its axis *l* for the catch *k* to hook over at certain times, and there is also attached to said arm, near its axis, a vertical projection, *m'*, the use of which will be presently shown.

To the frame or bed A, and at a point directly underneath the rod M, there is attached a bent or right-angular lever, O, the function of which will also be presently described. The arm N is loaded heavier than the lever L, and to the lower part of the latter there is attached a rod, P, said rod extending toward the front part of the bed or frame and attached to an arm, *n*, of a shaft, Q, placed transversely in the frame or bed, and having a lever, R, at its outer end. On the carriage B, at its lower part, there is attached by a pivot, *o*, a small pendant, *p*, and to said carriage, and at the same side there is attached a lateral projection, *q*.

I will proceed to describe the operation of the bolt-carriage, or the way in which it is fed toward the saw and gigged back. Motion is given the shaft E by any convenient power, and the loaded lever L being left free to act, it will keep the pinion K in gear with the wheel *d* on shaft C, and the latter consequently will be rotated from shaft E through the medium of the belt *f* and the gearing *g h K d*, and the strap *c* will be wound on one of the cone-pulleys and the carriage B fed toward the saw. As the carriage B approaches the termination of its forward movement the pendant *p* strikes the projection *m* of the arm N

and tilts it, so that the catch *k* of the rod *M* will catch over the projection *m*, and when the pendant *p* has passed the projection *m* the arm *N* will drop by its own gravity to its original position, and in thus operating will actuate the rod *M*, and the latter will move lever *L* so as to throw pinion *K* out of gear with wheel *d*, and the weight on strap *b* will draw or gig back the carriage *B* to its original position. The carriage may be released and giggered back at any part of its movement by simply actuating the rod *P* so as to move lever *L*. As the carriage is giggered back the projection *q* strikes lever *O* and elevates rod *M*, so as to free the catch *k* from the loaded arm *N* and allow the lever *L* to descend and throw the pinion *K* in gear with *d*. By this arrangement a very simple and efficient feed and giggering-back mechanism for the bolt-carriage is obtained.

The bolt-carriage *B* is constructed substantially as shown and described in my existing Letters Patent, two uprights, *r r*, being attached to a horizontal bed or frame, which is provided with wheels *s*, which run on the ways *a a*. On the upper ends of the uprights *r r* there is secured a frame, *S*, in the outer end of which there is placed a shaft, *t*, having a series of spur-wheels, *t'*, on it, and to the outer end of said frame there is attached a stationary jaw, *u*, which extends nearly or quite the whole width of the frame *S*, the jaw *u* being a little beyond the wheels *t'*. On one end of the shaft *t* there is placed a ratchet, *T*, which is provided alternately with long and short teeth, as shown clearly in Fig. 2.

U is a pawl which engages with the ratchet *T*, and is connected at its inner end with a bent lever, *V*, connected by a fulcrum-pin, *o*, with the frame *S*. The lower part of this lever *V* is loaded so as to have a tendency to keep the pawl *U* thrown forward the extent of its movement.

In the lower part of the bolt-carriage *B* there is placed a shaft, *w*, having a series of spur-wheels, *a'*, on it, and a ratchet, *W*, on one end. These parts correspond with the parts just described on the frame *S*, and the ratchet *W* has a pawl, *X*, engaging with it, said pawl being connected to a loaded bent lever, *Y*, which operates precisely similar to the lever *V* of pawl *U*, the only difference being that the latter is a pulling-pawl and the former a shoving one. A jaw, *u'*, is on the lower part of the bolt-carriage. Through the frame *S* there passes transversely a rod, *Z*, which has a cam projection, *b'*. A rod, *A'*, also passes through the lower part of the bolt-carriage, the latter rod having a cam projection, *c'*. At the front and back ends of the frame or bed *A* there are uprights *d'*.

On the inner part of the frame *S* the end of a spring, *e'*, bears. This spring keeps the bolt (shown in red and designated by *A^x*) secured

between the two sets of spur-wheels *t' a'*. Underneath the back part of the frame *S* there is placed a cam-shaft, *B'*, having two cams, *f'*, on it. By turning this shaft the frame *S* may be elevated, for the purpose of adjusting the bolt between the spur-wheels *t' a'*.

The spur-wheels *t' a'*, with the ratchets *T W*, pawls *U X*, and rods *Z A'* form the bolt-adjusting mechanism, and its operation is as follows:

Each time the carriage *B* is giggered back the ends of the rods *Z A'* strike the front upright, *d'*, and the levers *V Y* are actuated by the cam projections *b' c'* on the rods *Z A'*, and the pawls *U X* move the ratchets *T W*, and the spur-wheels *t' a'* move the bolt to the saw and present it to the same in an oblique position, the obliquity being due to the alternate long and short teeth on the ratchets *T W*, which cause the top and bottom of the bolt to be shoved outward at different distances, so that the shingles will be cut in taper form, and with the butts and points alternately from the top and bottom of the bolt. The rods *Z A'* during the feed or forward movement of the bolt-carriage come in contact with the front upright, *d'*, so as to be in proper position when the carriage is giggered back.

The operation of the saw is the same as usual, and the shingles fall into a box or receptacle, *C'*, which is attached to the side of the frame or bed *A* by a screw, *a^x*.

The jaws *u u'* hold the bolt after the same has passed from the teeth of the wheels *t' a'*, and prevent the saw catching the fragment or remaining portion of the bolt and throwing it out.

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

1. The arrangement of the loaded lever *L*, connected with shaft *J*, the shafts *C H E*, the loaded arm *N*, rod *M*, provided with catch *k*, lever *O*, and the pendant *p* and projection *q* on the bolt-carriage, as and for the purpose set forth.

2. The rods *Z A'*, fitted in the carriage *B*, provided with the cam projections *b' c'*, in connection with the uprights *d'*, attached to the frame *A*, and the bent levers *V Y*, pawls *U X*, and ratchets *T W*, provided with the alternate long and short teeth, all being arranged to operate substantially as and for the purpose set forth.

3. The application of the spring *e'* and the cam-shaft *B'* to the frame *S* of the bolt-carriage, as shown and described, for the purpose of facilitating the adjustment of the bolt in the carriage and the retaining of the same within the carriage, as set forth.

J. R. HALL.

Witnesses:

NATHANIEL DAVIS,
F. I. DAY.