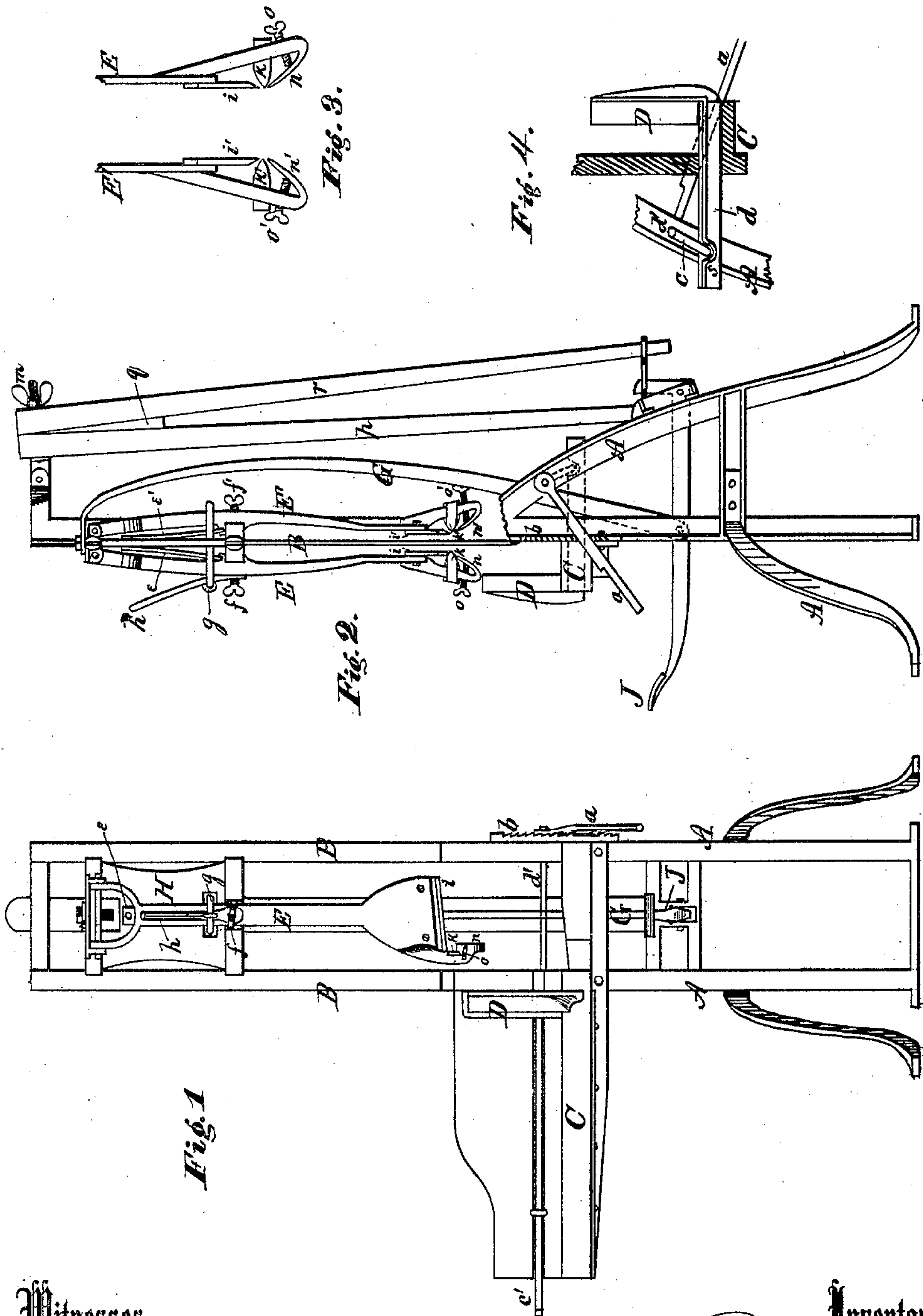


J. G. REITH.
TENONING-MACHINE.

No. 176,057.

Patented April 11, 1876.



Witnesses

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JOHN G. REITH, OF ALLEGHENY, PENNSYLVANIA.

IMPROVEMENT IN TENONING-MACHINES.

Specification forming part of Letters Patent No. **176,057**, dated April 11, 1876; application filed March 16, 1876.

To all whom may concern :

Be it known that I, JOHN GEORG REITH, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Tenoning Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a front elevation. Fig. 2 is a side elevation, partly sectional. Fig. 3 is a detail of knives. Fig. 4 is a detail showing operation of vise.

This invention relates to tenoning-machines; and consists in the means of adjusting the knives to suit various requirements, and in the combination of devices to co-operate, as hereinafter fully described and claimed.

Referring to the accompanying drawings, the frame A extends upwardly in two parallel guideways, B B. The table C is attached to the frame across its face, and securely bolted thereto. Projecting through table C at right angles is the vise D, having its shank *d* sliding in dovetail slots in frame A. Passing through frame A at right angles to shank *d* is a shaft, *d'*, connected to it by an elbow-crank, *c*, and slot *s*, and at its other end a pawl-lever, *a*, and rack *b*. The purpose of this mechanism is to procure an easy and direct method of locking the timber in position for tenoning. A rod, *c'*, adjusted by a thumb-nut and hook-bolt from behind, is used to adjust the length of tenon to be cut, and equalizes the same when several are to be cut of a size. Reciprocating vertically in the ways B B is a head, H, which carries the cutting devices. Horizontally pivoted or hinged to lugs on both faces of head H are the knife-bearing arms E E'. These are bowed, as seen, and are drawn inwardly by springs *e e'*. Threaded holes are cut at about the middle of these arms, into which work adjusting-screws *f f'*, respectively bearing against the faces of head H. By tightening these the arms are forced apart as far as required by the cut to be made, and are closed together by springs *e e'*. This latter is aided by a link, *g*, which em-

braces both arms, through a slot in the head H, and pressure is exerted against the separation of arms E E' by means of a hand-lever, *h*, through one end of which screw *f* passes loosely, and whose fulcrum is the link *g*. By pulling outwardly on the upper end of lever *h* the link is drawn tightly against opposite arm E' and the lower end of the lever pushed against arm E, thus preventing any spreading of the knives while cutting. The arms E E' carry the knives at their lower ends. These consist of the splitting-knives *i i'*, set vertically and parallel, removably attached, and with their cutting-edges so inclined from the horizontal that the part next the knives *k k'* will enter the wood first. The object of this alignment is to cause a shear-cut to be made toward the end and from the cut made by the knives *k k'*. The latter are fitted to a projection of the arms E E' below, or in advance of knives *i i'*, and at right angles thereto. They are also removably attached, to permit sharpening. Pressing against the wood in advance of these are two spring presser-feet, *n n'*, which are adjustable laterally by means of screws *o o'*. These, it will be seen, easily regulate the depth of cut to be made by knives *k k'*. Attached to the head H is the connecting-rod G, which extends down to a foot-treadle, J, or is connected to other powers, as desired. I design this particularly for a foot-power machine, and therefore confine my description to it as such. The treadle J projects in front of the operator, connects with rod G by a slot and pivot, and is pivoted to the rear of frame A, thence extends upwardly to form a bell-crank lever. To give the recovery stroke to the knives, I construct a spring, as follows: Rigidly attached at both ends is a vertical beam, *p*, which is free to spring all along its length. The bolt which attaches it above passes also through a wedge, *q*, and through the upper end of another beam, *r*, where it is capped by a thumb nut, *m*. The lower end of beam *r* is attached by a link to the upwardly-projecting end of treadle J. When the treadle is depressed by the foot of the operator, the beam *r* is sprung inwardly, and through the transmission of pressure by wedge *q* the beam *p* is also sprung. Hence, when the operator releases the treadle, the beams fly to their

normal position and recover the knives clear of the timber being cut. As the size of the latter will vary, the degree of recovery may be regulated to suit, which I do by means of nut *m* and wedge *q*, thus varying the amount of spring in the two beams.

The operation is obvious. The treadle being depressed, the knives come down, give the required cut, and recover for another cut, and so on. The machine is simple, cheap, and effectually performs all kinds of tenoning, since the knives can be adjusted to any depth of cut on one or both sides, or different in both, or it may be made to cut only on one side. I thus obtain a ready substitute for the expensive and cumbersome steam-machines. By a simple adjustment of the arms they can be made to cut dovetail tenons or other forms. Give the knives horizontal sweep, and it is done.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is as follows:

1. The combination of the set-screws *o o'* with the spring-pressers *n n'* to adjust the depth of cut, as specified.

2. The combination with arms *E E'*, respectively, of the springs *e e'*, set-screw *f f'*, link *g*, and lever *h*, all operating substantially as described.

3. In combination with table *C*, the vise *D*, operated by lever *a* through extension *c* and slot *s*, as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of March, 1876.

JOHN GEORG REITH.

Witnesses:

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