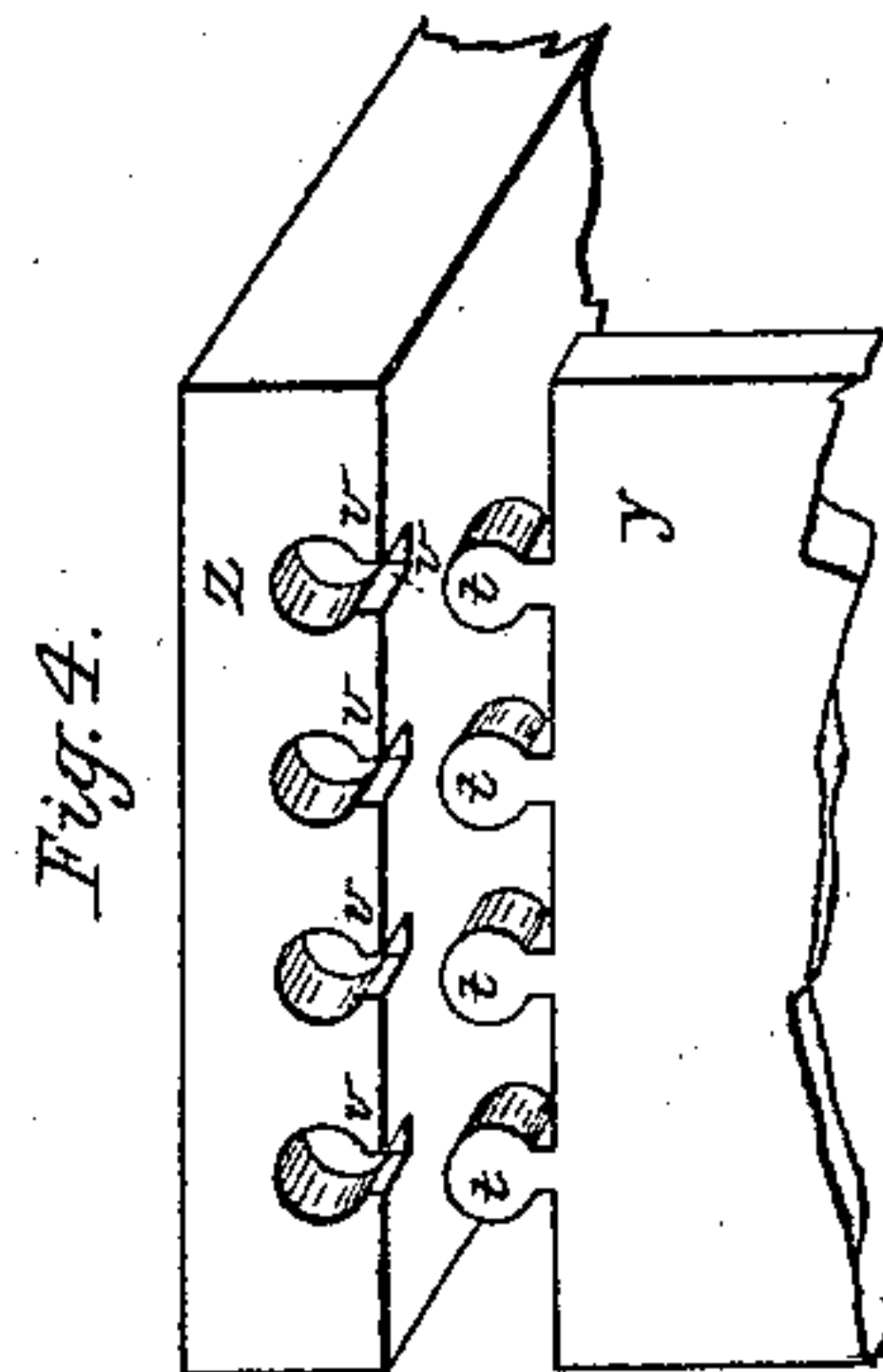
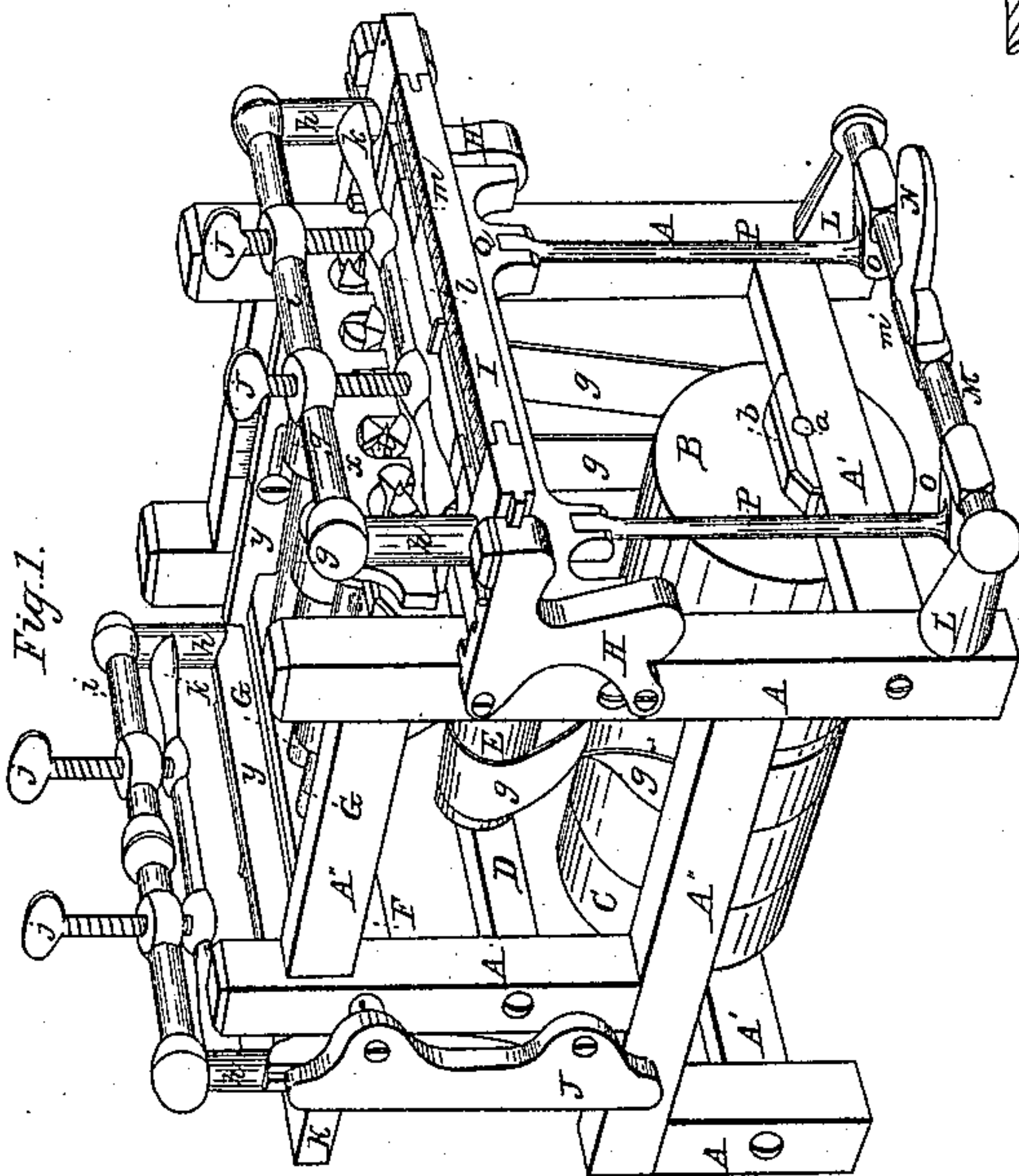
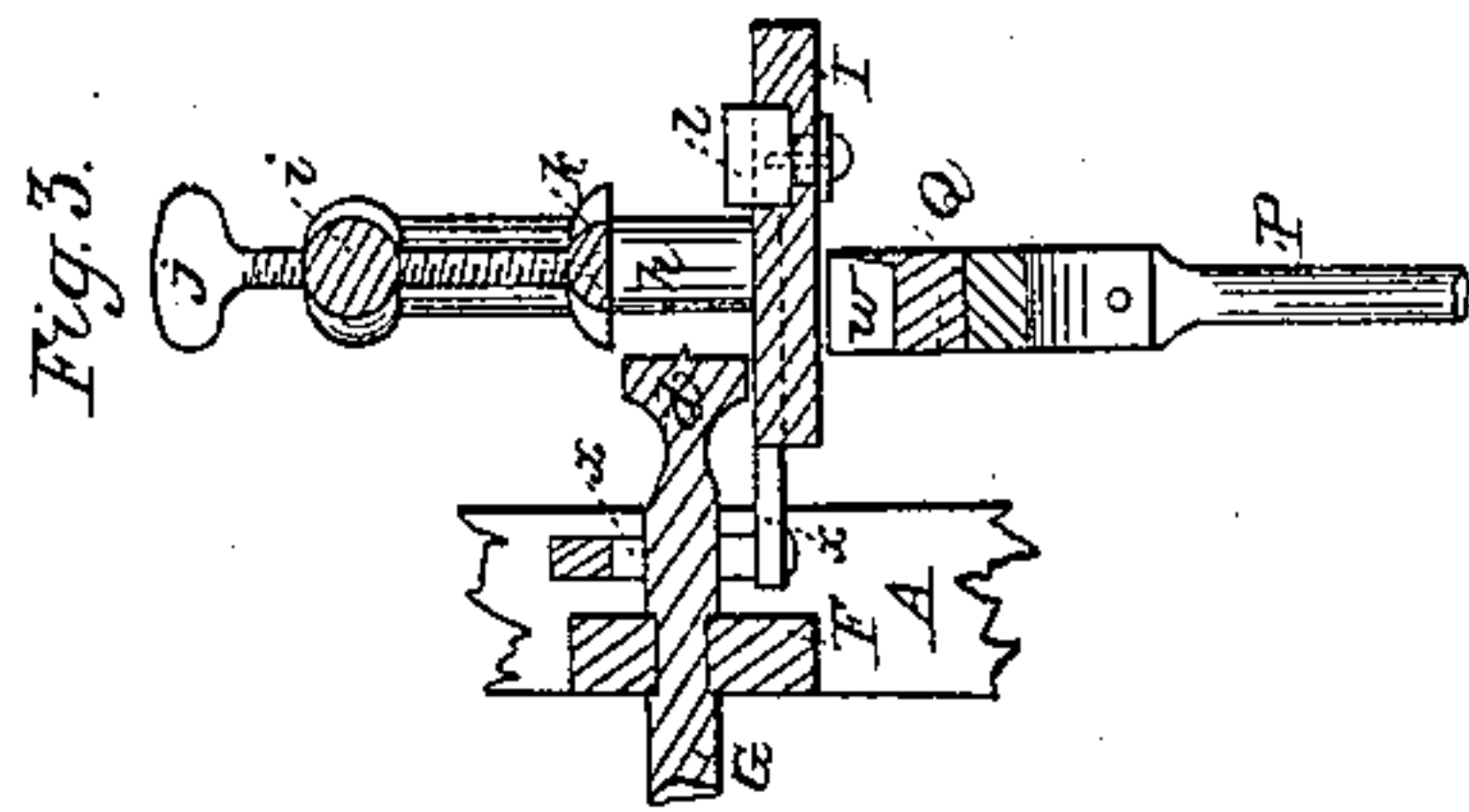
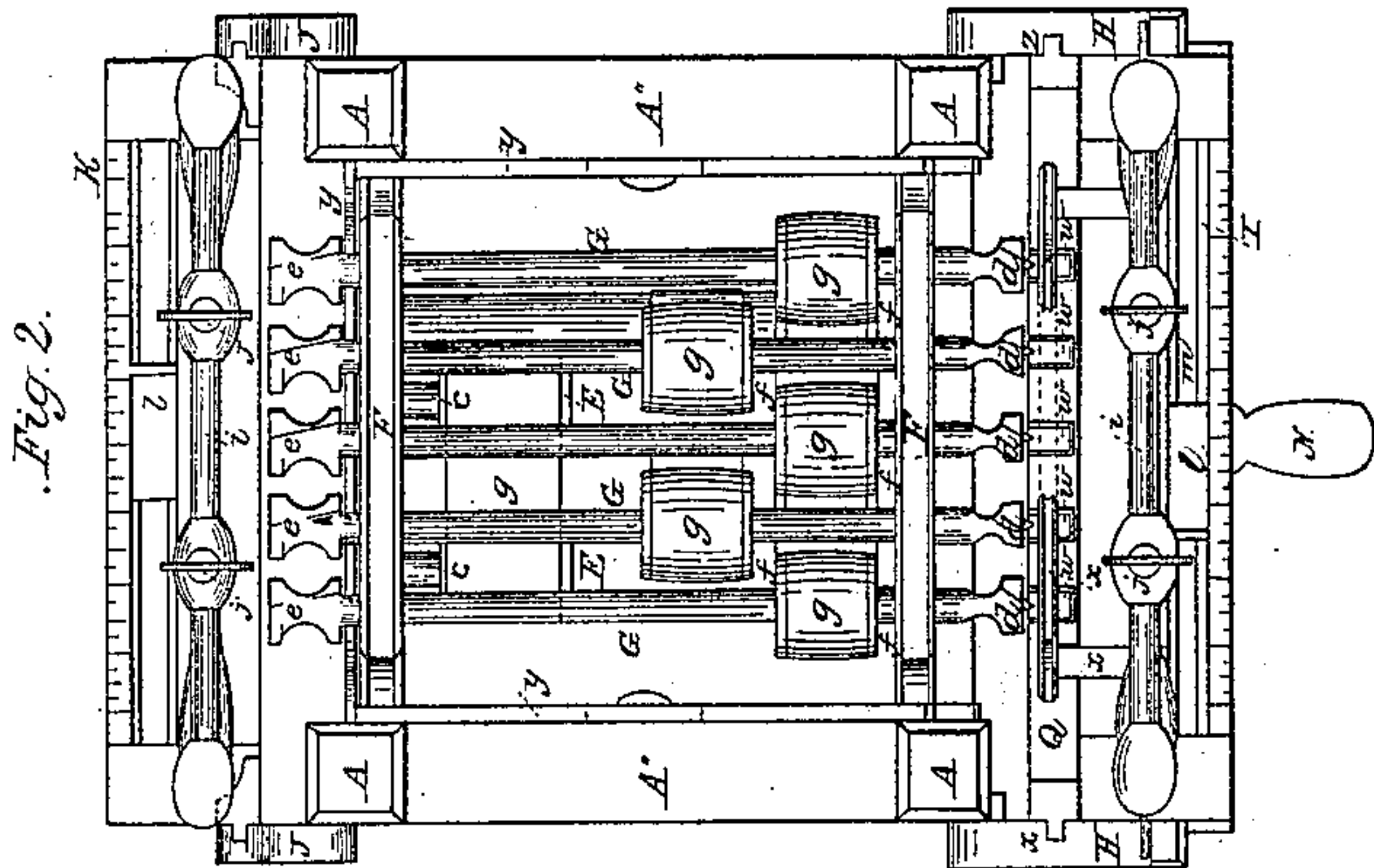


King & Norris,

Dovetailing Machine,

No 31,175,

Patented Jan. 22, 1861.



Witnesses.
Wm. Kellogg
Geo. Burns

Inventors:
D. A. King
J. Norris

UNITED STATES PATENT OFFICE.

D. A. KING AND T. NORRIS, OF LEXINGTON, KENTUCKY.

DOVETAILING-MACHINE.

Specification of Letters Patent No. 31,175, dated January 22, 1861.

To all whom it may concern:

Be it known that we, D. A. KING and T. NORRIS, both of Lexington, in the county of Fayette and State of Kentucky, have invented a new and useful machine, which we have named an "Improved Dovetailing-Machine;" and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and letters of reference marked thereon, which form part of this specification.

Our invention relates to the means and method of forming the joints of cabinet, or other wood-work, somewhat after the manner known as "dovetailing"; and consists of a machine having two sets of rotating "bits" or tools; one set of which forms the dove-tail tenons, and the other set of which forms the mortises to match.

In order that others duly skilled may be enabled to construct and use our invention, we shall proceed to describe it in detail.

In the accompanying drawings: Figure 1 is a perspective view of the complete machine. Fig. 2 is a plan of the same, looking down on top. Fig. 3 is a vertical section longitudinally through one of the mortising bits, and contiguous parts. Fig. 4 shows two pieces of board, all ready for being fitted or joined together, their matched ends having been formed by our machine.

Like letters of reference designate like parts in all the drawings.

The frame of the machine consists of stout uprights A, A, etc., and cross beams A', A'; A'', A'' etc.; the whole being solidly and firmly jointed and framed together by mortise and tenon, and secured by screw bolts, or other convenient and sufficient devices. The lower cross-beams A', A', carry a shaft *a*, to which is keyed the driving pulley or drum B, and on which shaft revolves the loose pulley or "idler" C.

b, shows one of the journal boxes of shaft *a*.

Two cross rails D, D, carry the spindles *c*, *c*, of two sets of pulleys E, E; and two other cross rails F, F, situated higher up than the last named, carry the spindles G, G, to any convenient number. These spindles G, G, etc. are properly journaled in boxes or bearings constructed in the cross rails F, F, and they each carry at one extremity a mortise-bit *d*, and at the other extremity a tenoning or dove-tailing bit *e*. Each

spindle likewise is furnished with a pulley or drum *f*. By means of a series of belts *g*, *g*, passing around driving pulley B, and over pulleys *f* and E, E, rapid rotary motion may be given to the spindles G, G, etc., and to their "bits" *d*, *d*, *e*, *e*.

To the long uprights A, A, two brackets H, H, are firmly secured; and these brackets support a bench I. This bench slides in horizontal grooves cut in inner side of brackets, and may be moved by hand to or from the bits or tools *d*, *d*, etc. Two uprights *h*, *h*, are secured to bench I, and carry the cross rail *i*. Two clamping screws *j*, *j*, passing through the cross rail *i*, are attached to the clamping rail *k*. This bench I is furnished with a scale of inches and parts on its edge, and with a set-gage *l*, which slides in a slot *m*, near to the graduated edge. A movable gage, or stop *x*, is attached to this bench for a purpose hereinafter to be explained. To the short uprights A, A, at the other end of machine, two brackets J, J, are secured, and these brackets support a bench K, furnished with clamping apparatus, set-gage *l*, and graduated edge, etc., precisely like the bench I previously described, and on drawing the parts are designated by similar letters. There is this difference however between the two benches, viz: that that first described has a horizontal movement, while that last described has a vertical movement. The reason for this difference will appear farther on. An adjustable stop or gage *y*, is furnished to this bench K, but it is fastened (adjustably) to the cross pieces A'', A'', instead of to the bench, as described in the case of stop *x*.

At the foot of uprights A, A, two stout projecting arms L, L, are affixed; and these receive the journals of rocking shaft M, which is furnished with a treadle N. This treadle is hinged at *m'*, for convenience of being put out of the way when not in use. Two arms or cranks O, O, are formed on rocking shaft, and to these are attached the pitmen P, P; which pitmen carry at their upper ends the cross piece Q, which slides up and down in vertical grooves *z*, in brackets H, H. This cross piece is furnished with chisel shaped tools or bits, *w*, *w*, etc., (Fig. 3;) for completing the mortises made by the rotating bits *d*, *d*, etc.

The operation of the device or machine, whose several parts have been described, is as follows: Motion being communicated to

the driving pulley B, from a steam engine, horse, or other power, the spindles G, G, and bits d, d, e, e , etc., are set in rapid motion. This motion is however subject to the
 5 operator, and may be shut off or turned on at pleasure by any of the well known and commonly used devices. The bench I, having been drawn out as far from the bits d, d , as possible, and the gage x , set to correspond
 10 with the required depth of mortise; the board to be jointed is laid on the bench, (underneath the clamping bar k ,) its edge set by gage l , on graduated edge, and the screws
 15 j, j , clamped down so as to keep it firmly in position. Now the bits d, d , being in motion—the bench and board are firmly pressed against them, and they perforate a series of cylindrical mortises in the edge of the board. When this operation is accomplished, the
 20 bench I, is drawn out again as at first; and the workman pressing his foot firmly on the treadle N, forces up the cross piece Q and its chisel shaped tools w, w, w , &c. These cut out the neck v , left by the augers or
 25 “bits” d, d , and complete the jointing of one board, as represented at Z, Fig. 4. The gage y , at the other end of machine being set to correspond with gage x , first mentioned and the gage l , on bench K, being
 30 also set to correspond with that on bench I, the said bench K, is raised up entirely above the level of the bits e, e, e . Another piece of board is then laid on bench, clamped down

by the clamping apparatus, and the bench and board firmly depressed so as to come in
 35 contact with the rotating cutting bits e, e, e . These bits cut their way through, but leave a series of pedunculated disks (which we for brevity's sake call dove-tails) t, t , on board
 40 Y (Fig. 4) corresponding to mortises on Z in same figure. These only require to be fitted together and glued to make a neat and firm joint.

The advantages of our invention are, greater accuracy of workmanship, together
 45 with extreme rapidity of execution, and consequently greatly decreased cost of manufacture, in those articles where it can be used.

We claim as our invention, and desire to secure by Letters Patent:
 50

1. The boring bits d, d , and sliding bench I, in combination with the chisel bits w, w , when constructed and arranged to operate together in forming the peculiar mortises on Z Fig. 4, substantially in the manner
 55 specified.

2. The combination and arrangement of the tenoning bits e, e , the sliding bench K, and the adjustable stop y ; constructed and operating substantially as, and for the pur-
 60 pose set forth.

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Witnesses:

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