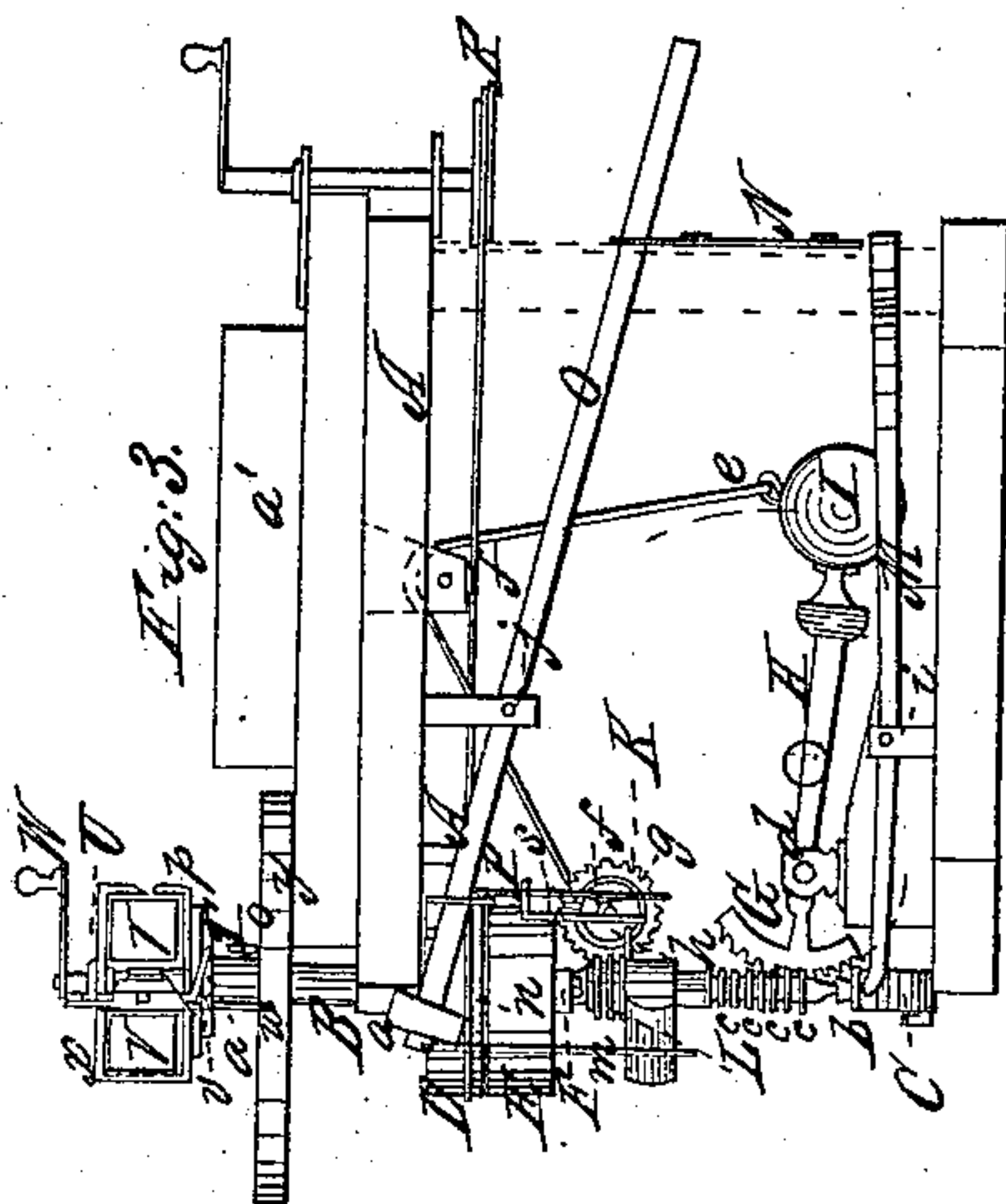
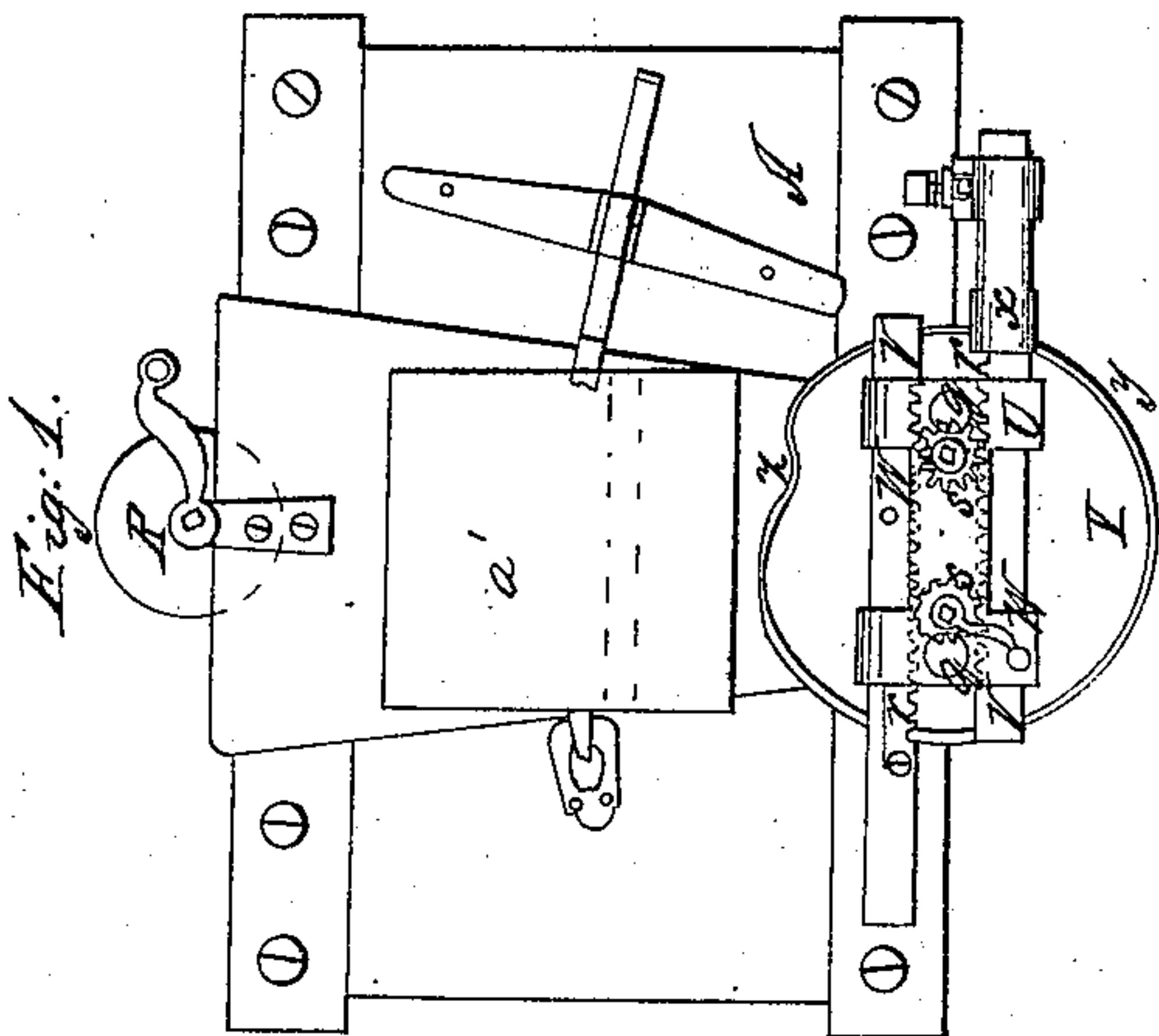
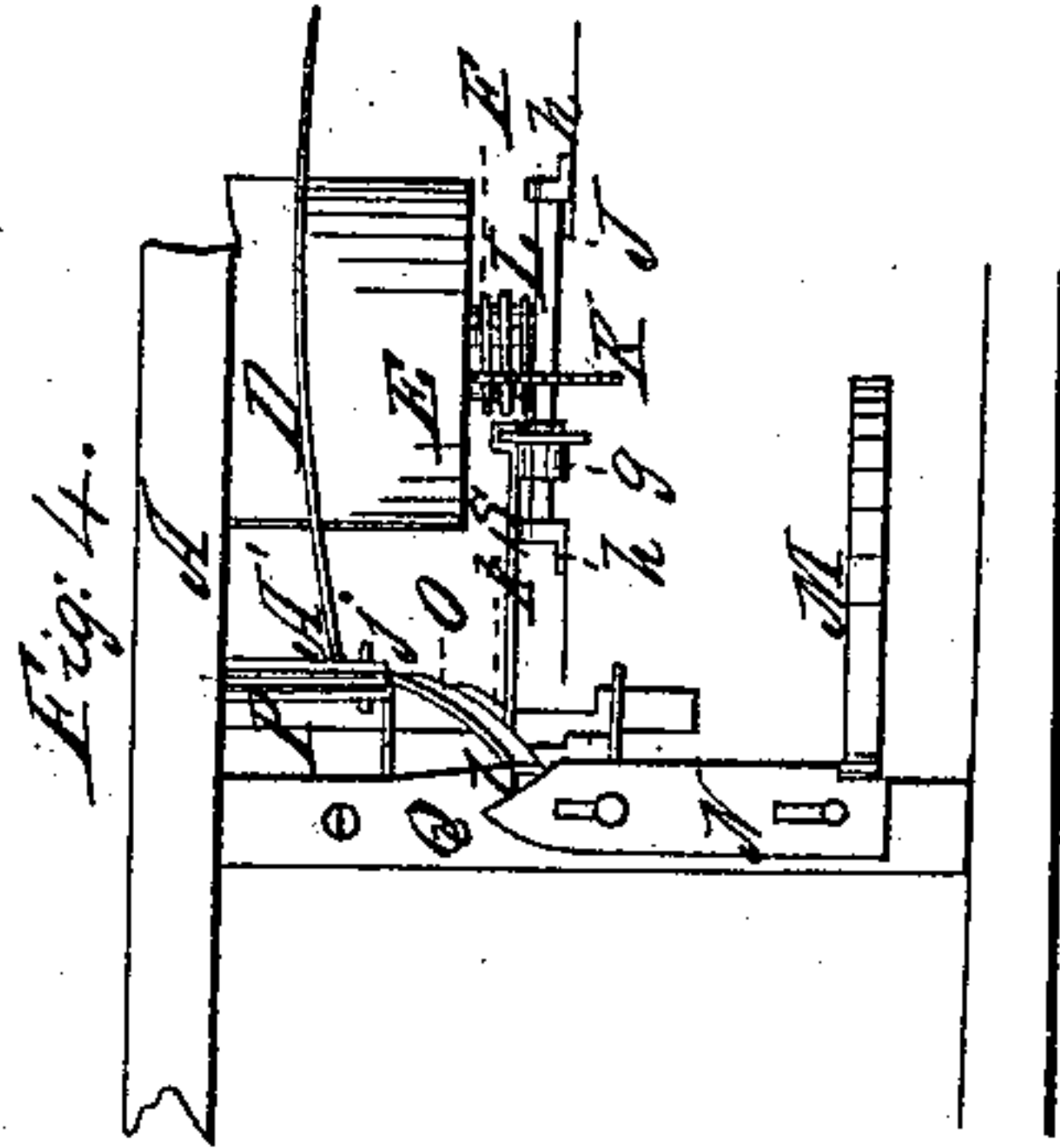
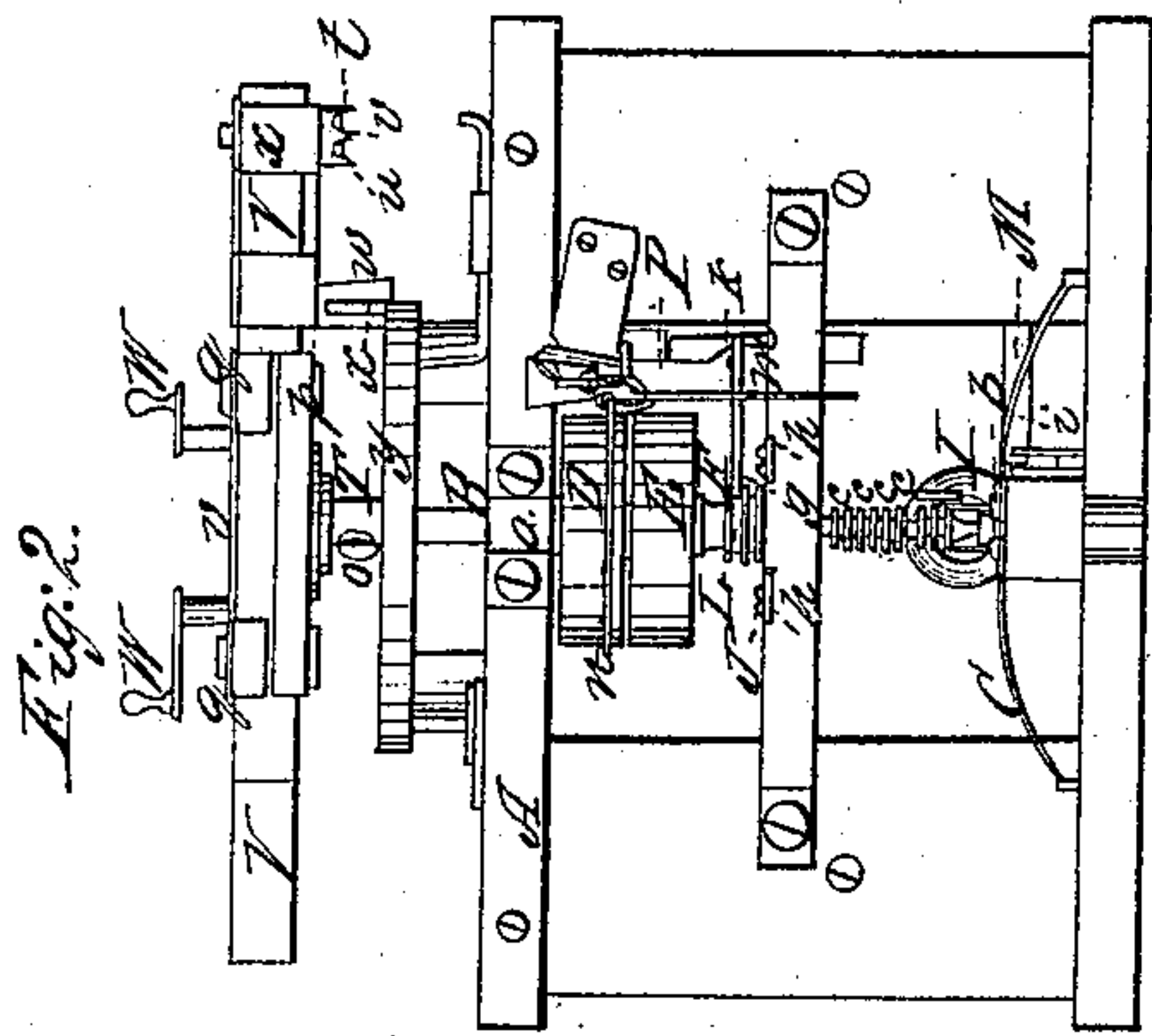


*Smith & Cowles,  
Slivering Wood.*

*N<sup>o</sup> 12,424.*

*Patented Feb. 20, 1855.*





# UNITED STATES PATENT OFFICE.

S. R. SMITH AND E. COWLES, OF HADLEY, MASSACHUSETTS.

MACHINE FOR CUTTING WOOD INTO SLIVERS.

Specification of Letters Patent No. 12,424, dated February 20, 1855.

*To all whom it may concern:*

Be it known that we, SAMUEL R. SMITH and ELIJAH COWLES, of Hadley, in the county of Hampshire and State of Massachusetts, have invented a new and Improved Machine for Cutting Wood into Narrow Thin Shavings for Upholstery Purposes; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1, is a plan or top view of my improved machine. Fig. 2, is a back end view of the same, in elevation. Fig. 3, is a side view of the same, the side of the frame nearest the eye, being removed. Fig. 4, is a view of a portion of the front end of the frame.

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

The nature of our invention consists, 1st, in the peculiar means employed for giving the necessary feed motion to the cutters, and 2d in the arrangement, and construction of the cutter head and guide, by which the cutters are made to pass over the "stuff" to be cut, in a right line.

To enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation.

A, represents the frame of the machine, constructed in any proper manner to support the working parts.

B, (Figs. 2 and 3,) represents a vertical shaft at the back end of the frame, A, said shaft working in a suitable bearing (a) attached to the frame. The lower end of the shaft, B, works in a step (b) attached to the upper part of a spring, C. The shaft B, has two pulleys, D, E. D, is a working, and, E, is an idle pulley. The working pulley, D, is attached to a hollow shaft, F, which fits over the shaft, B, and is secured to it by a feather and groove, so as to allow the shaft, B, to rotate, when the pulley, D, rotates, and at the same time allow the shaft, B, to be depressed, without depressing the pulley, D. The idle pulley, E, is merely fitted loosely on the hollow shaft, F.

The lower part of the shaft, B, has a series of grooves or recesses, (c) cut in it, as shown clearly in Figs. 2 and 3, and in these recesses a segment rack, G, gears, (see Fig. 3,) said rack being at the end of a

lever, H, which has its fulcrum at (d). To the outer end of the lever, H, there is attached a weight, I, and also a cord (e) passing over a pulley (f) at the upper part of the frame, A, and having its end secured to a clutch (g) which is on a small shaft, J, the bearings (h, h) of which are attached to the back end of the frame, A, (see Figs. 2, 3, and 4,). On the shaft, J, there is a worm wheel, K, which gears into a screw, L, on the hollow shaft, F, of the pulley, D, (see Figs. 3 and 4).

M, is a lever, having its fulcrum at (i), one end of this lever is underneath the spring, C, (see Fig. 3) and the opposite end is underneath a slide, N, attached to the front end of the frame, A, (see Figs. 3 and 4).

O, is a lever having its fulcrum at (j) one end of this lever (the outer end) passes through an upright arm, P, having an inclined or beveled edge as shown at (k) Figs. 2 and 4, and the opposite end is fitted in a notch or underneath a projection (l) on a plate, Q, attached to the front end of the frame, A, directly above the slide, N, as clearly shown in Fig. 4. The outer end of the lever, O, is provided with a wire (m) having a loop in it through which a belt (n) passes, said belt passing around the working pulley, D, and also a driving pulley, R, at the front end of the frame, A, see Fig. 3. A', is a spring which bears upon the lever, O.

S, is a slide through which the upright arm, P, passes, (see Figs. 2, 3 and 4). The inner end of this slide is attached to the clutch (g) as clearly shown in Fig. 4.

T, is a cap which is fitted on the upper end of the shaft, B, and secured thereon by a screw (o) see Figs. 2 and 3. The cap, T, has a flat metal plate (p) secured to its upper surface, and the edges or sides of this plate are bent upward as shown in Fig. 3. U, is a plate formed precisely similar to the plate (p) only inverted and placed directly over the plate (p). The two plates being secured together by bolts, (q).

V, are rectangular bars which are fitted between the plates (p) and, U, said bars having racks (r) cut in their sides in which pinions (s) gear, see dotted lines in Fig. 1, said pinions being upon small upright shafts, secured between the plates (p) and U,—the upper ends of the pinion shafts are provided with cranks, W, as shown in Figs. 1, 2 and 3.



X, is a sliding stock which works on the outer end of one of the bars, V,—one stock only is shown in the drawings, but in practice each bar is provided with one. The stock, X, near its outer end is provided with a cutter (*t*) formed of a chisel (*u*) slightly inclined from a horizontal position, and a series of cutting points (*v*) three or more, directly behind it, see Figs. 2 and 3. Near the inner end of the stock, X, there is an arm (*w*) which projects downward, and has a slot (*x*) cut in its end.

Y, is a disk secured on the upper part of the frame, A, and having an upright rim or ledge (*y*) around it, (see Figs. 1, 2, and 3.) The disk, Y, is of nearly but not quite circular form, one side being curved or bent, as shown at (*z*) Fig. 1. The rim or ledge (*y*) fits in the slot (*x*) in the lower end of the arm (*w*) as shown in Figs. 2 and 3.

Operation: Motion being given the driving pulley, R, the pulley, D, is made to rotate, and also the shaft, B, with the bars V, V. Each bar, V, being provided with a stock, X, and cutter (*t*) attached to it. The cutters (*t*) as the bars, V, rotate, pass in a right or straight line over the "stuff" which is placed on the upper part of the frame, A, and represented by (*a'*) see Figs. 1 and 3. The cutters pass over the "stuff" in a straight line owing to the irregular curved portion (*z*) of the rim or ledge (*y*) said portion (*z*) operating or moving the cutter stock X, in consequence of the arm (*w*) fitting on or over the rim or ledge (*y*). The cutters as they pass over the "stuff" cut thin narrow shavings, the chisel (*u*) cutting a broad shaving, and the cutters (*v*) dividing it into narrow ones. The cutters are fed down upon the "stuff" in the following manner. As the hollow shaft, F, rotates, the screw L, upon it, communicates motion to the worm wheel, K, and the small shaft, J, rotates, and the cord (*e*) is wound upon one part of the clutch (*g*)—the weighted end of the lever, H, is consequently raised and the inner end depressed, and as the rack G, gears into the recesses (*c*) the shaft, B, is gradually depressed and the cutters fed to the "stuff," when the cutters have descended a distance equal to the thickness of the "stuff" the spring C, is depressed sufficiently to cause the inner end of the lever,

M, to act upon the slide, N, and throw the inner end of the lever, O, out from underneath the projection (*l*) on the plate, Q, and the spring, A', throws the inner end of the lever, O, upward and the upright arm, P, in moving throws the slide, S, in such manner as to separate or disconnect the clutch (*g*) and consequently the feed motion ceases, the shaft, B, and lever, H, returning to their original position, by means of the spring, C, and weight, I, the belt (*n*) by the downward movement of the lever, O, being thrown on the idle pulley, E. The cutters (*t*) are then moved outward, so as to take another cut by turning the cranks, W. The lever, O, (its under end) placed under the projection (*l*) and the operation above described is repeated.

It is necessary that the cutters should pass in a straight line over the "stuff" in order that the shavings may be cut in the direction of the grain, and not transversely with it; in the latter case the shavings would be brittle, and have no elasticity.

What we claim as new and desire to secure by Letters Patent, is,

1. Giving the necessary feed motion to the cutters by means of the lever, H, with the segment rack, G, attached to one end, which rack gears into the recesses, (*c*) cut in the lower end of the shaft, B, the opposite or weighted end of the lever being raised by the cord (*e*) which is wound around a clutch (*g*) on the shaft, J,—motion being given the shaft J, by the worm wheel, K, and screw, L, substantially as herein shown.

2. We claim giving the necessary direction to the cutters while passing over the "stuff" (*a'*) by means of the rim or ledge (*y*) on the disk, Y,—said rim or ledge having a bent or curved portion (*z*) which in consequence of the arm (*w*) working upon it communicates the proper motion to the cutter stocks, so that the cutters will pass over the "stuff" in a right or straight line, as herein described.

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ELIJAH COWLES.

Witnesses:

SAMUEL NASH,  
MARTYN S. NASH.