

*Fenn, Fenn & Cook,
Mortising Machine.*

N^o 93, 291.

Patented Aug. 3. 1869.

Fig. 1.

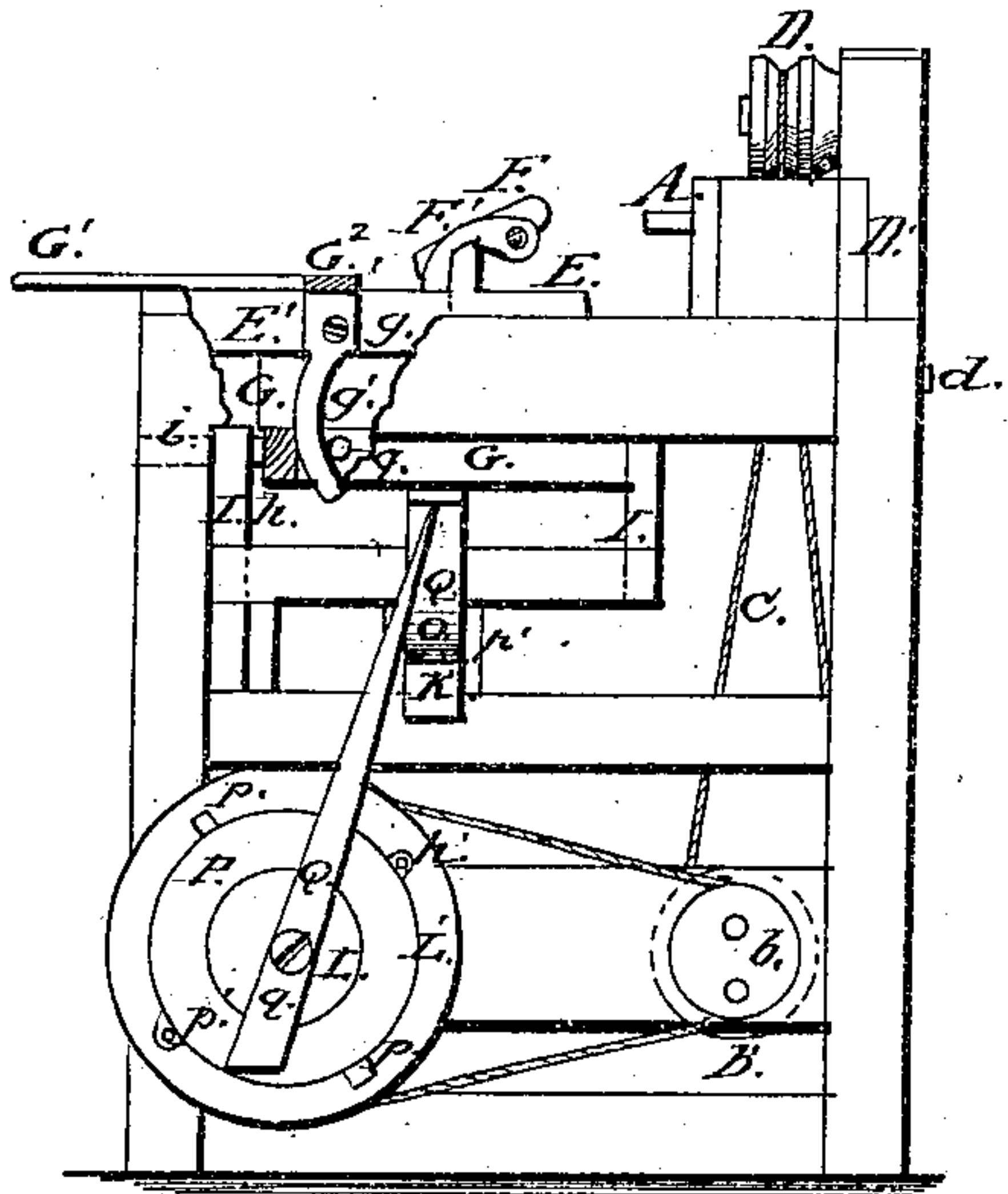
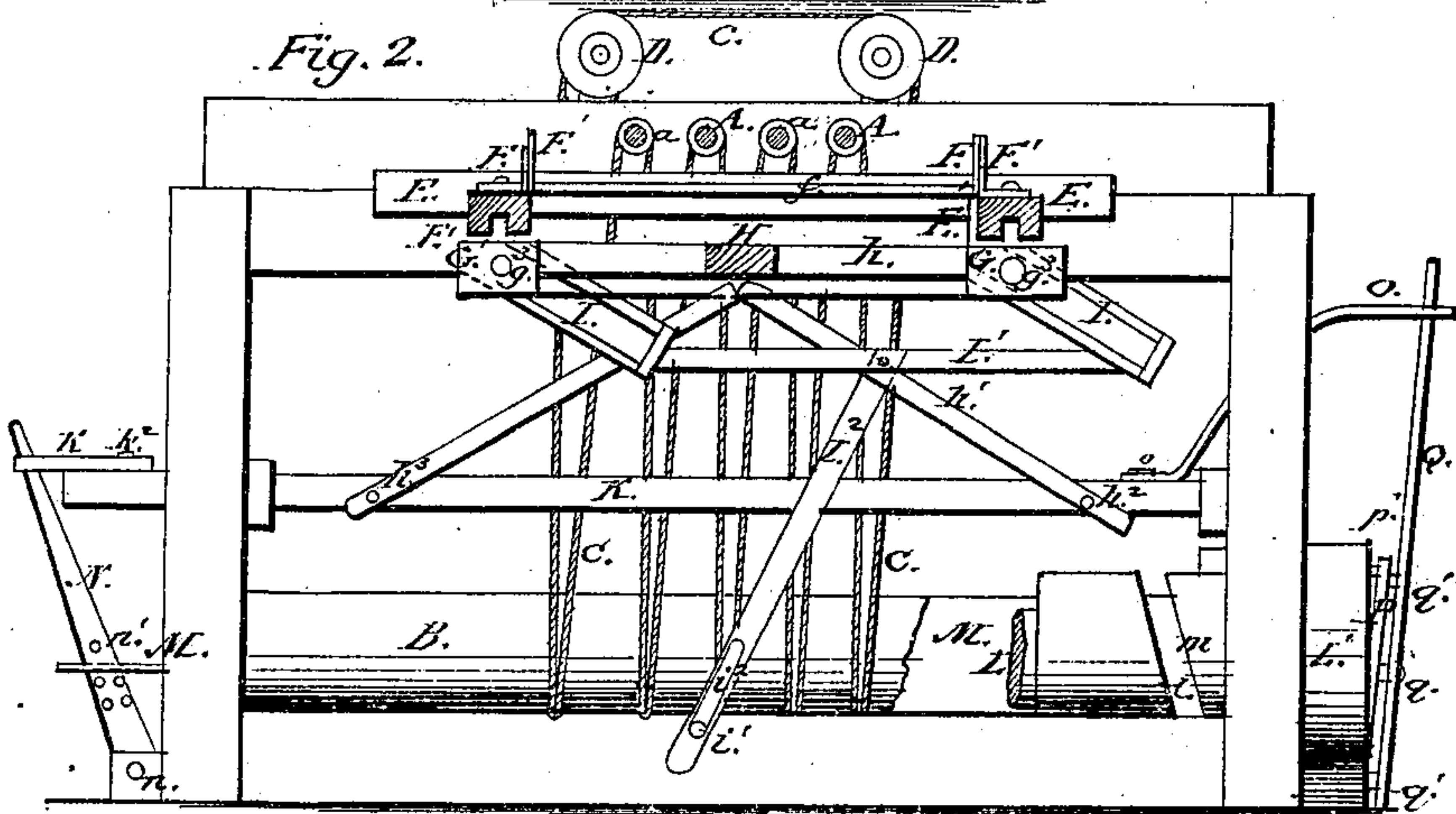
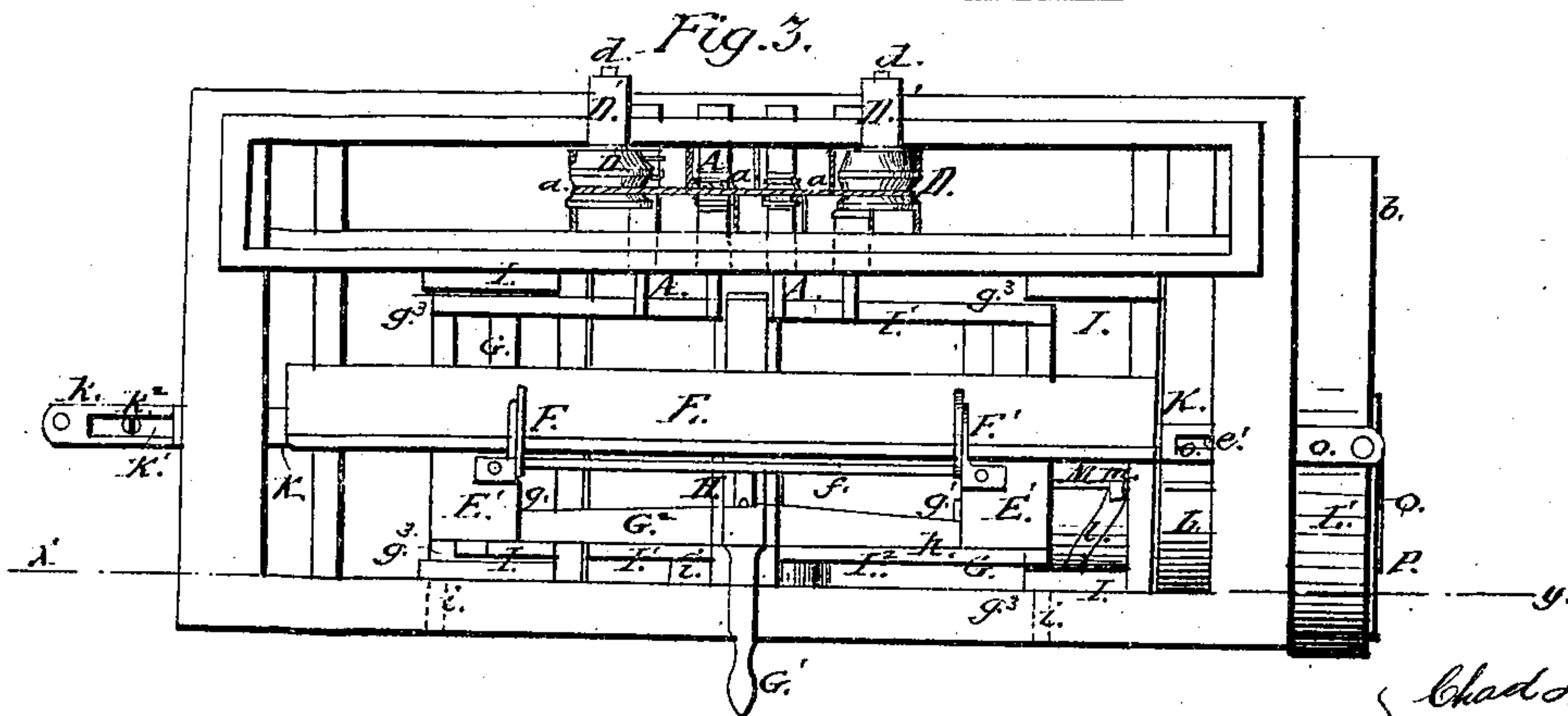


Fig. 2.



a. Fig. 3.



Witnesses:
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Letters Patent No. 93,291, dated August 3, 1869.

IMPROVEMENT IN MACHINE FOR MORTISING BLIND-STILES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, CHARLES A. FENN, EDWARD P. FENN, and ISAAC COOK, of St. Louis, in the county of St. Louis, and State of Missouri, have made certain new and useful Improvements in Machines for Mortising Blind-Rails, and similar purposes; and we do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of said invention is to form a series of parallel mortises or slots in any desired material, such as are usually needed in rails of blinds for inserting slats in said mortises.

The nature of said invention is in the feed-motion of the table for holding the material, said feed-motion being reversible to a right or left-inclined direction; and said nature is in the detail arrangement of devices for operating the table and cutters.

To enable those herein skilled to make and use our said improvement, we will now fully describe the same, referring to—

Figure 1 as an end view; to

Figure 2 as sectional elevation along line $x y$ of plan; and

Figure 3 as a plan.

We arrange the operating-parts of our said machine upon a suitable frame of cast-iron or wood, generally of the form indicated in the several figures.

At the upper side of the frame we secure the arbors A of the mortising-tools, arranging proper bearings therefor.

The arbors will lie transversely and parallel to each other, and said arbors will hold, at their ends, the proper mortising and slotting-tool.

As such tool, we prefer to use the one described in the Letters Patent, issued to William Zimmerman, of date, the 11th day of July, 1865, and numbered 48,759.

The number of arbors and tools used will vary, and may be as great as twenty-five, in accordance with the number of slots to be made.

To operate said tools, we place a main drum, B, with its bearing in the main frame, said drum being propelled or rotated by the pulley b , from the power-source, in any usual manner.

The operating-belt or cord C passes over a small pulley, a , on each arbor, and runs down under the drum B, the connection with the drum B being made direct from each single pulley, a , and at ends said cord C passes over the tighteners D, supported on standards D', which may be adjusted as to height by set-screws d , in the slots therefor provided.

The advantage of said arrangement is in the use of a continuous belt, which thus gives equal speed to all arbors.

An additional tightener may be arranged against the cord C, if necessary.

The blind-rail or other material to be mortised will be placed upon the bed E, said bed being supported on transverse slides E'.

In order to hold down the stuff on said bed, a clamping-cam F is arranged pivoted to the supports F', secured to the slides E'.

The cams F will be connected by the bar f , this being grasped by the operator and raised, the curvature of the cams F is then such as to firmly hold the stuff under said cams upon the bed E.

The slides E' move on the bars G, and, in order to regulate this motion of the slides E', and thereby regulate the forward feed of the stuff against the tool, to enable it to penetrate to required depth, we arrange the hand-lever G¹, operating to turn the bar G², said bar being pivoted at g in the slides E', the cam-levers g^1 extending from the bar G² down between pins g^2 on one side, and the longitudinal frame-piece h connecting the bars G on the other side.

By the curvature of the cam-levers g^1 and their radial vibration in the confinement between the said pins g^2 and the piece h , the operator is enabled to move forward said slides E', and bed E, and the stuff thereon, as desired, and this is performed by raising up or depressing the hand-lever G¹ as aforesaid.

As the tool is penetrating, it is necessary to move the stuff in the direction of the length of the desired slot. This we accomplish by the device, and in the manner following:

The bars G are connected longitudinally by the frame-pieces h , these sustaining the central transverse piece H.

At their outer ends, the bars G have rounded ends g^3 , which are to move in the ways I.

To the piece H we connect, by a hinged joint, a link, b , said link being, at its lower end, connected to a bar, K, which performs a reciprocating motion, as herein-after to be described.

By the action of said bar K and the link b , the entire frame, formed by the pieces H, h , G, E', and E, is made to move up and down, subject to the direction of the ways I.

The direction of said ways will be made to accord with the angle of the desired slots in the blind-rails, and in order to properly adjust said ways, and especially to give said slots a right or left direction, we have arranged to remove the pin h^2 , securing the link h^1 to the bar K, so that a second link, having the required direction, may be connected with the bar K, or so, that by simply moving the one link h^1 to different holes, h^3 , on said bar K, the direction of this attachment may be adjusted.

In order furthermore to adjust the ways I to a desired angle, we pivot the same to the main frame at i ,

and connect the lower ends of said ways by a connecting-bar I^1 , and to the latter, a direction-bar, I^2 , is attached, with its lower end connected, by set-screw i^1 , adjustably to the main frame, the adjustment being made by the slot i^2 of said direction-bar I^2 .

When the set-screw i^1 is loosened, the hinged frame, formed by the ways I and bar I^1 , may be adjusted to the desired angle, and by tightening the set-screw i^1 , the direction-bar I^2 then holds the said parts in the position thus formed.

In order to produce the reciprocating motion of the bed E and its slides E' in the direction of the mortise or slot to be produced, it was necessary to operate the link h^1 by the reciprocating bar K , as hereinbefore stated. In order to produce the reciprocating motion of said bar K , we have arranged, firstly, as follows:

From the power-pulley b , by belt or other suitable connection, we rotate the shaft L . On said shaft is the cam-slot l , operating, as the shaft L revolves, the pin m of the vibrator-bar M . At the end of said bar M this will connect with the lever N , whose fulcrum is at n , and said lever will, at its upper end, connect with the extension-piece k of the bar K . Thus, by the cam-slot l , and the pin, and vibrator-rod M , the lever N is actuated, and this again produces the reciprocating motion desired in the bar K .

In order that the length of each stroke of the bar K , and thus the movement of the table E , and the length of mortise cut, may be regulated, there will be a number of holes, n' , to each of which the vibrator M may attach, (said bar M being allowed to move vertically in this adjustment,) and the throw of the lever N will thus be adjusted, and regulate the length of slot cut.

In order furthermore to regulate the relative height of the bed E to the axis of the tools, the extension-link k has a slot, k^1 , and a set-screw, k^2 , for adjustment.

For the same purpose as before indicated, to wit, to produce the reciprocating motion of the bar K , we have, secondly, arranged as follows:

To said bar K we attach an extension-arm, Q , the attachment being by set-screw o acting in the slot o' , so that hereby the relative height of bed E and the tools may be adjusted.

On the shaft L we arrange the drum L' , having on its outer face the cam-plate P . Said cam-plate is pivoted by trunnions p , and adjusted as to its angle, (with the face of the drum,) by set-screws p' .

In the axis of the shaft L a pivot-pin, q , holds the vibrating lever Q , which bears, by its tappets q' , on the outer edges of the cam-plate P . Then, by the rotation of the inclined cam-plate P , the lever Q is vibrated, and herefrom a reciprocating motion produced in the bar K , as desired.

Either of said devices for producing vibratory rectilinear motion of the bar K may be used, the adaptability of the one or the other arrangement being dependent upon contingencies of expense and allotted space.

Having thus fully described our said invention,

What we claim, is—

1. The parts G^1 G^2 g^1 and the slides E' , combined with the bar G , frame h H , the ways I , rod I^1 , and direction-bar I^2 , and operated by the bar K and link h^1 , substantially as set forth.

2. The frame E E' , slide-bars G , frame h H , link h^1 , and bar K , when arranged in combination with and adjusted by the extension-piece k , its slot k^1 and set-screw k^2 , substantially as set forth.

3. The operating-shaft L , and the cam-plate P , pivoted at p , and adjusted at p' , combined and arranged with the lever Q and bar K , substantially as set forth.

In witness of said invention, we have hereunto set our hands, in the presence of—

CHAS. A. FENN.
EDWARD P. FENN.
ISAAC COOK.

Witnesses:

GEO. P. HERTHEL, Jr.,
WM. W. HERTHEL.