

(No Model.)

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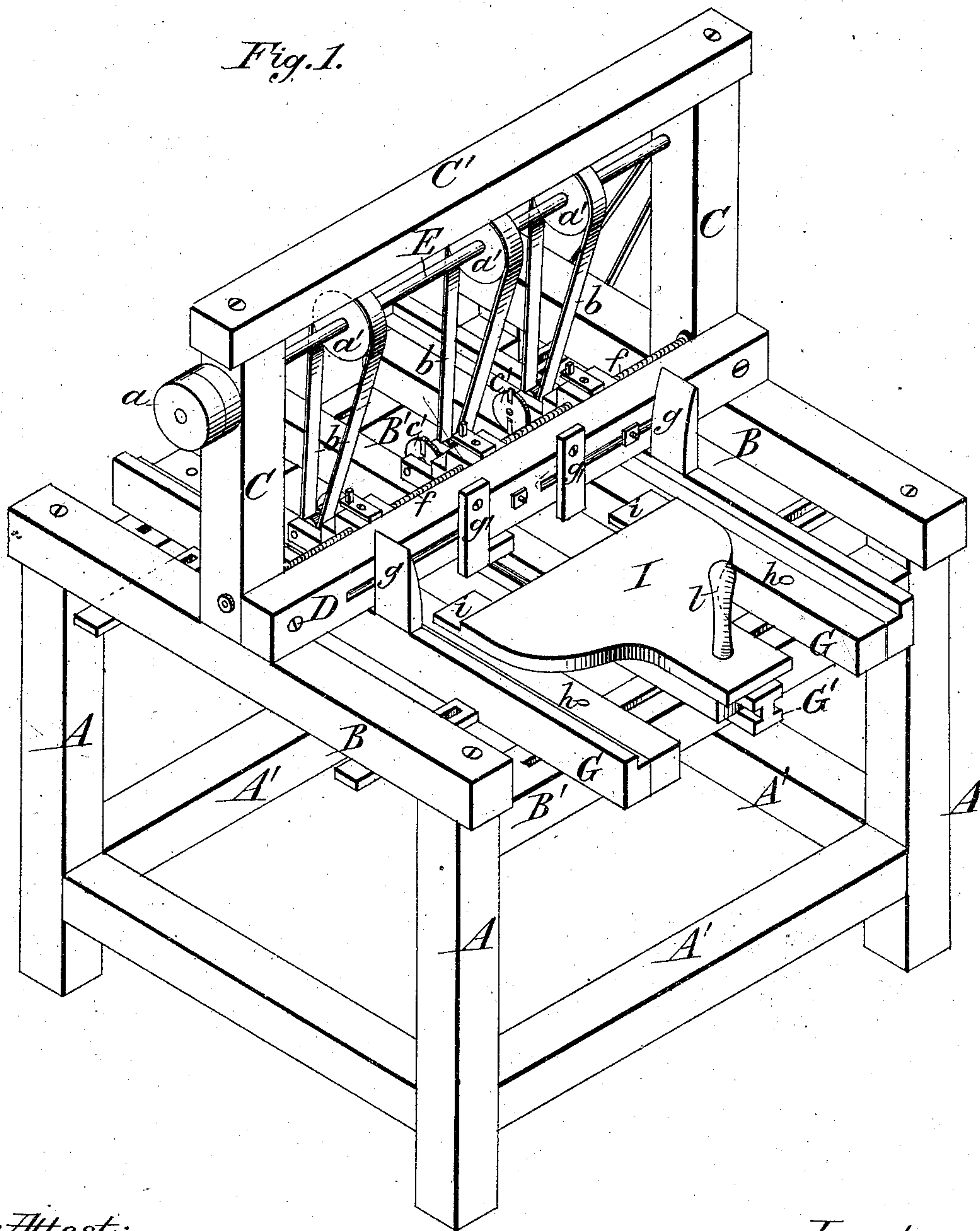
J. FORNCROOK.

Machine for Scoring Honey Box Sections.

No. 239,476.

Patented March 29, 1881.

Fig. 1.



Attest:

H. H. Schott.

A. R. Brown

Inventor:

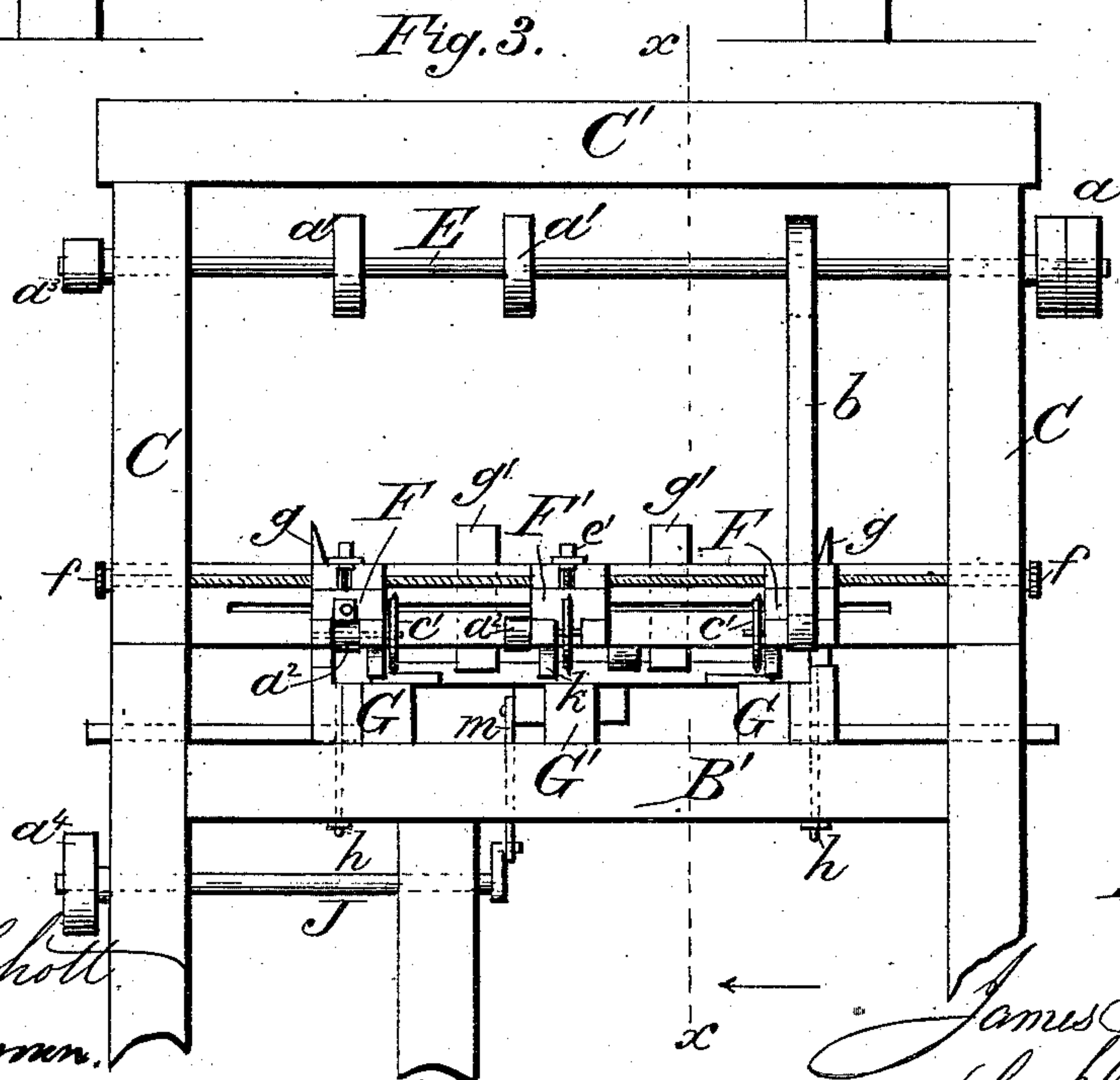
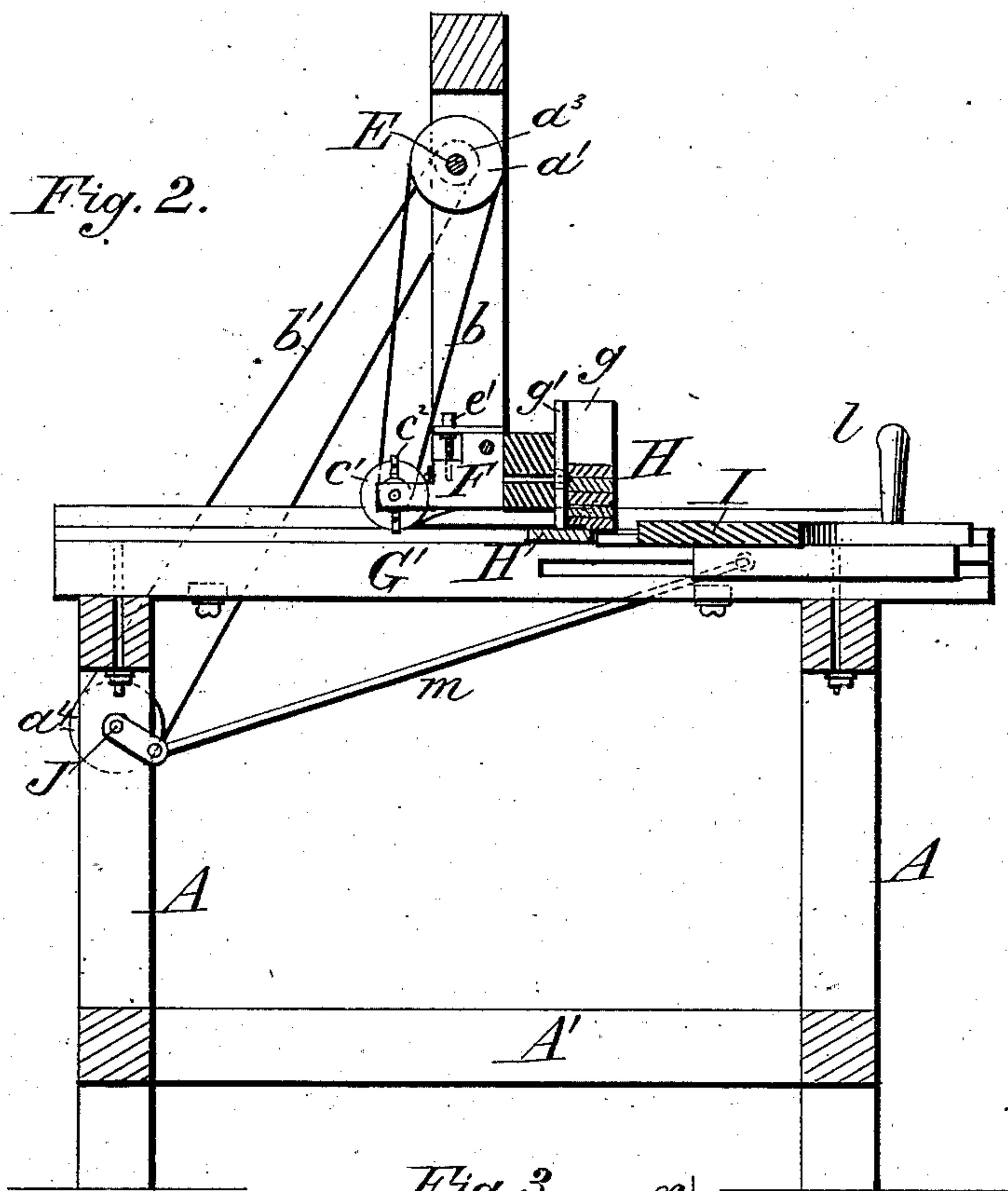
James Forncrook
By J. C. Parker, atty.

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3 Sheets—Sheet 3.

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Fig. 4.

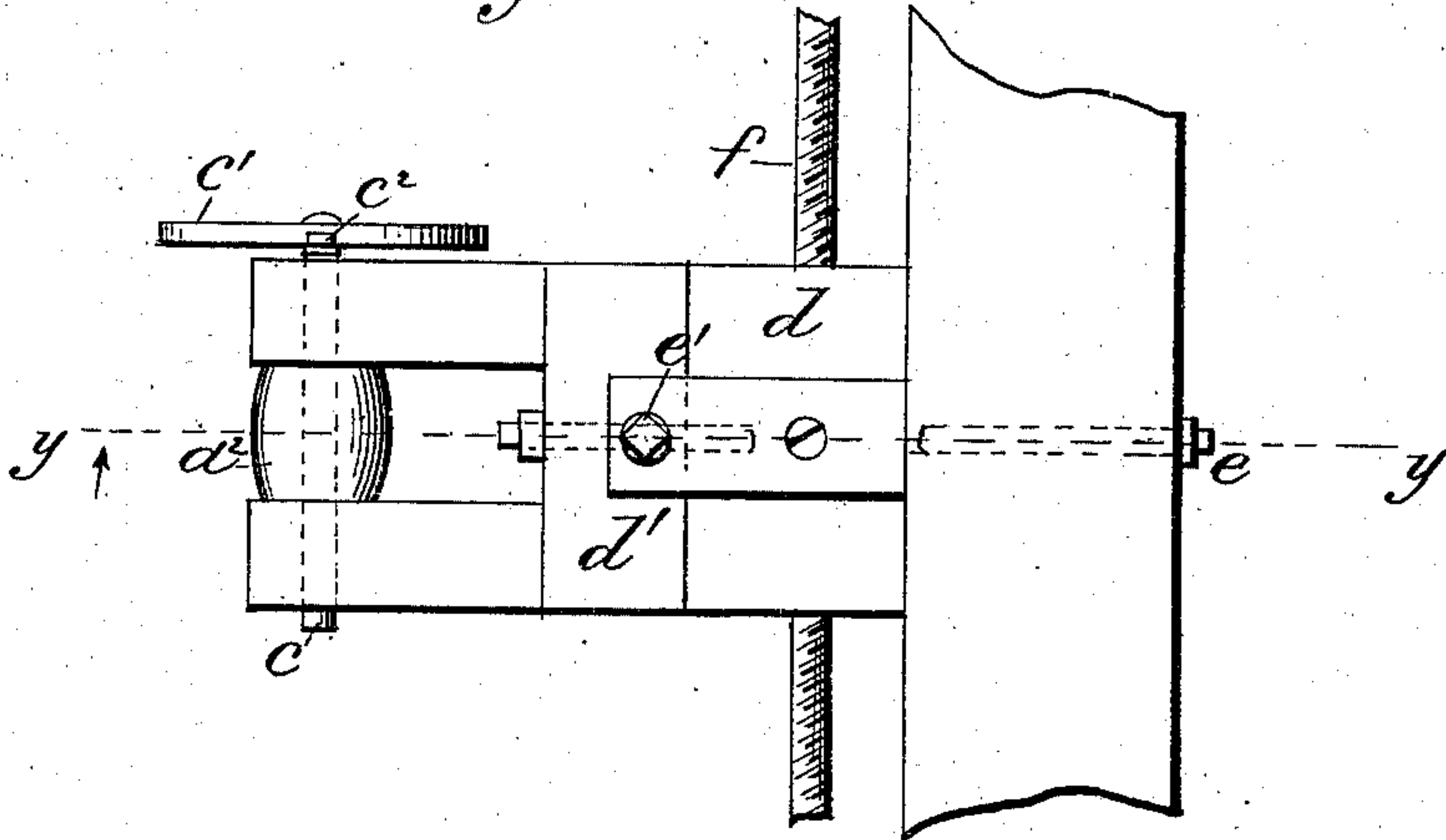
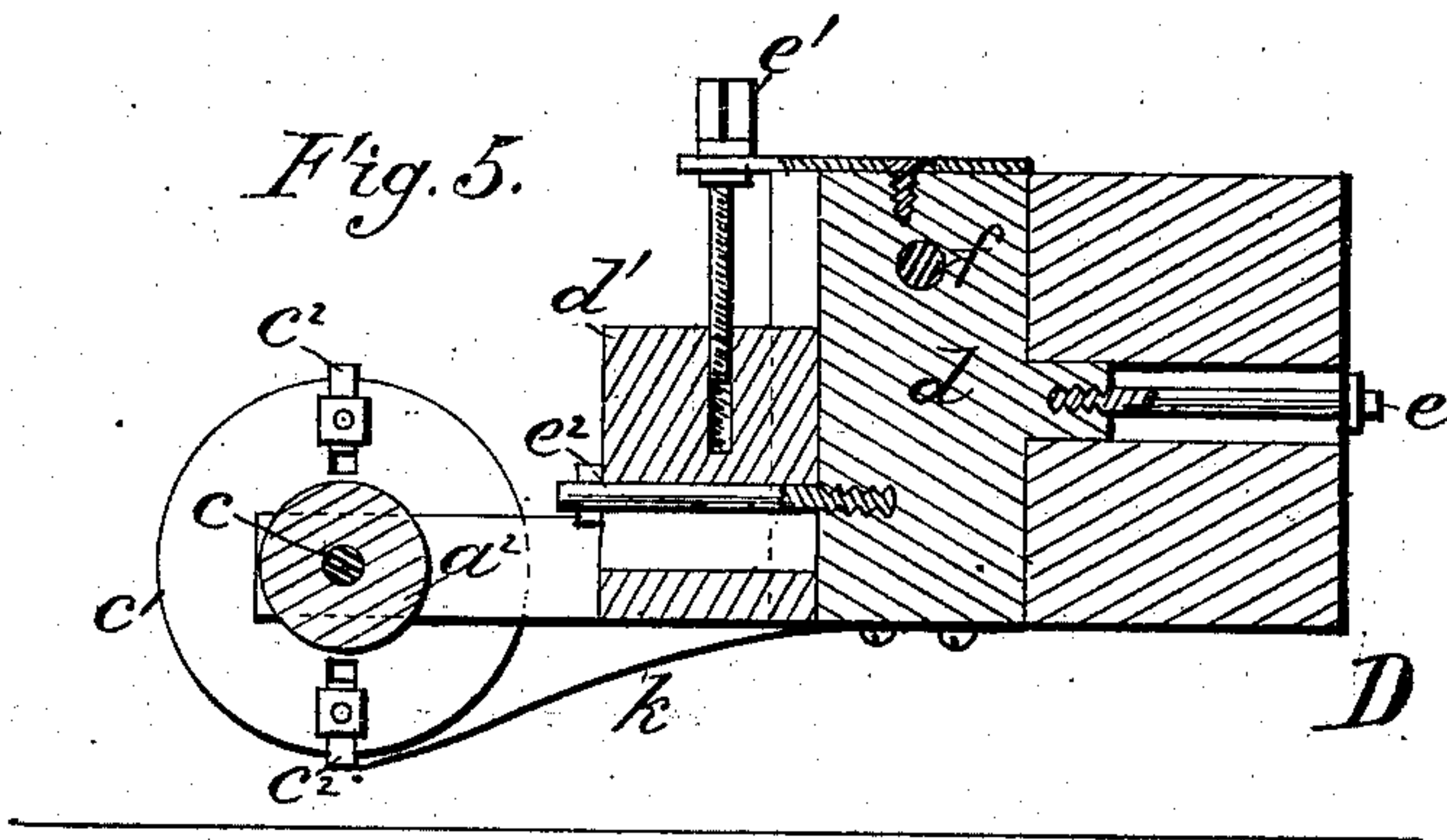


Fig. 5.



Attest:

F. H. Schott.
A. R. Brown

Inventor:

James Forncrook
per J. C. Parker
att'y

UNITED STATES PATENT OFFICE.

JAMES FORNCROOK, OF WATERTOWN, WISCONSIN.

MACHINE FOR SCORING HONEY-BOX SECTIONS.

SPECIFICATION forming part of Letters Patent No. 239,476, dated March 29, 1881.

Application filed May 19, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES FORNCROOK, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of Wisconsin, have invented certain new and useful Improvements in Machines for Making Honey-Sections; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of wood-working machines employed in the manufacture of honey-box frames, or "sections," as they are technically called, and which are used by apiarians in connection with bee-hives, each section forming four sides of a box, of such a depth as to receive one layer of honey-comb, and being provided with certain grooves and notches for the entrance and assistance of the bees in attaching the comb securely to the box. These sections are each preferably formed from a single piece or strip of wood of suitable dimensions, the ends of which are dovetailed or otherwise prepared for uniting when the strip is bent into the rectangular or box form, such bending being facilitated by means of three triangular grooves cut across the strip at those points, which, when the strip or sections is bent into shape, form the corners of the box. These grooves, while penetrating the material sufficiently to allow of its being easily bent into the desired shape, yet leave sufficient wood at the corners to give the needed strength; and to cut these triangular corner grooves across the sections is the principal work for which the machine under consideration is intended.

The invention consists in certain details of construction and combinations of parts hereinafter fully described, and then specifically pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the machine complete. Fig. 2 is a vertical longitudinal section on the line $x x$ of Fig. 3. Fig. 3 is an end view of the machine looking toward the cutters and showing their position relatively to the other parts. Fig. 4 is a plan view of one of the cutters and its car-

riage, together with a portion of the cross-bar to which they are attached. Fig. 5 is a vertical section on the line $y y$ of Fig. 4.

The frame of the machine, (which may be constructed of wood or metal, as preferred,) in the accompanying drawings, is shown as being formed of wood, and consists, essentially, of the vertical corner posts, $A A$, connected near their lower ends by horizontal girts $A' A'$, and at their upper ends by the beams $B B$, just below which are the slotted transverse girts $B' B'$. About mid-length of the beams $B B$ are erected the posts $C C$, carrying the connecting-beam C' upon their upper ends, and supporting the slotted cross-bar D near their lower ends. All these parts, being connected together by mortises and tenons as well as joint-bolts where needed, form a strong and substantial frame-work capable of supporting the operating parts in a perfectly steady manner.

The driving-shaft E crosses the frame just beneath the beam C' , being carried in suitable journal-boxes attached to or in the posts $C C$. Motion is imparted to this shaft from any suitable prime mover by a belt to the pulleys a upon one of its ends. Secured at suitable distances from each other upon this shaft are the pulleys $a' a'$, from which belts $b b$ depend, and, by their action on pulleys a^2 upon the arbors $c c$, impart rotation to them and to the cutter-heads $c' c'$, secured thereon. These arbors are mounted in adjustable stands $F F$ and central stationary stand, F' . These stands are secured to the slotted cross-bar D by means of bolts $e e$, which, in the case of the stands $F F$, pass through the slot in the bar, and are connected to the part d of the stands. This arrangement, it will be seen, allows the horizontal adjustment of the cutter-heads $F F$ upon the bar D toward or from the stand F' , to suit section-blanks of different lengths. The front parts, d' , of the cutter-stands are made vertically adjustable upon the parts d by means of the screws e' and screw-bolts e^2 , the first of which is employed in raising or lowering the part, while the screw-bolts e^2 secure it firmly in the desired position upon the part d .

In order to render the horizontal adjustment of the cutter-heads speedy and correct, the screws $f f$ are provided, which are journaled

in the posts C C at one end, and in the center cutter-supporting stand, F', at the other, and pass through a corresponding nut formed in the stands F F, enabling them to be readily
 5 adjusted at any desired distance from the center stand, F', thus causing the three transverse grooves in the section-blank to be formed at the proper points with relation to its length to form three of the corners of the frame.

10 The cutter-heads c' are provided with knives c^2 , of proper shape to form the grooves in the sections, said knives being adjustably connected to the cutter-heads by placing their shanks in slots formed in the heads, and se-
 15 curing them therein by means of screw-bolts, as shown in Fig. 5 of the drawings.

Other means of securing the knives or cutters in place may be employed; but I prefer the means described, as it affords a very con-
 20 venient means of adjustment diametrically, and of removing and replacing the cutters by others when desired.

Two longitudinally-rabbeted section beds or supports, G G, are placed under the cutter-
 25 heads, and adjustably secured to the slotted girts B' B' by the bolts $h h$, which pass through the supports and through the slots in the girts. A vertical end guide, g , is attached to each of the rabbeted supports G adjoining the cross-
 30 bar D, and serve to retain the pile of section-blanks H in their proper endwise position relatively to the cutter-heads, while they are further supported by the guides g' , attached to the cross-bar D.

35 In order to feed the section-blanks rapidly to the cutters, a central guide-support, G', is provided, which is firmly secured to the girts B' beneath the cutter-stand F. This guide-support is grooved upon its opposite sides,
 40 and controls the reciprocating movements of the pusher I, the front of which is furnished with two projections, $i i$, which, when the pusher is moved forward, strike the lowest section-blank in the pile, forcing it forward
 45 under the lower end of the supports g' and springs k , which latter keep it down upon the supports G G and G' until it passes under the rotating cutters. The pusher I is provided with a handle, l , by which it may be recipro-
 50 cated, if desired; but in order to make its movements automatic, a crank-shaft, J, is journaled in suitable supports at one end of the machine, motion being communicated thereto by belt b' , running over pulleys a^3 on one end
 55 of the driving-shaft E, and a^4 on the outer end of the crank-shaft. A connecting-rod, m , is attached at one end to the crank upon the shaft J, and at the other to the pusher I, so that as the crank-shaft revolves a reciprocating motion will be given to the pusher, thus making the machine self-feeding, and giving time to the operator to keep the pile of section-blanks supplied as they are fed forward from the bottom by the action of the pusher.

65 The operation of the machine will be apparent from the foregoing description, and it will be also apparent that by changing the

form of the cutters and arranging the bed to suit, it may be used for many other purposes besides that of cutting the triangular grooves 70 across the section-blanks—such as cutting the longitudinal groove for the comb attachment—and by bringing the cutters close together might be used for dovetailing or notching the ends of the blanks, so that they may be readily 75 united after being bent into the rectangular form.

I am aware that machines have been heretofore constructed that were provided with rotating and adjustable cutters, and used for 80 various purposes in the art of wood-working, and do not, therefore, broadly claim such devices; but

What I do claim, and desire to secure by Letters Patent, is— 85

1. In a machine for forming the transverse triangular grooves in honey sections or frames, the combination of vertically and horizontally adjustable rotating cutters with the horizontally-adjustable blank supports and guides, 90 and suitable devices for feeding the blanks forward under the cutters, substantially as set forth.

2. The combination, in a wood-working machine, of the vertically-adjustable rotating 95 cutter and cutter-stand F' with the vertically and horizontally adjustable rotating cutters and stands F F, slotted cross-bar D, and screws $f f$, arranged and operating substantially as and for the purpose described. 100

3. In a machine for scoring the blanks to form the sides of rectangular boxes, the combination of the table or bed with side timbers, the cutter-shaft, the cutters, a slotted cross-beam, spring-fingers, side guides, and a feed- 105 ing-slide provided with projecting pieces, and arranged to slide upon the table or bed, and arranged to operate upon the bottom one of a number of blanks, to feed the blank beneath the guide-fingers and cutters, substantially as 110 described.

4. The combination of the cutter-stands, composed of the block d , secured to the cross-bar D, and carrying spring k , with the vertically-adjustable part d' , carrying the rotating 115 cutter-head provided with adjustable cutters, all the parts being arranged for joint operation as set forth.

5. In a machine for scoring blanks, as above specified, the combination of the table or bed, 120 side timbers, cutter-shaft, adjustable cutters, slotted beam, adjustable spring-fingers, clamping-bolts, and guides adjustably secured to the bed upon which the blanks are held as they pass beneath the fingers and cutters, all 125 these parts being combined in the manner substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES FORNCROOK.

Witnesses:

FRANK B. TUTTLE,
 W. P. KEYES.