

(No Model.)

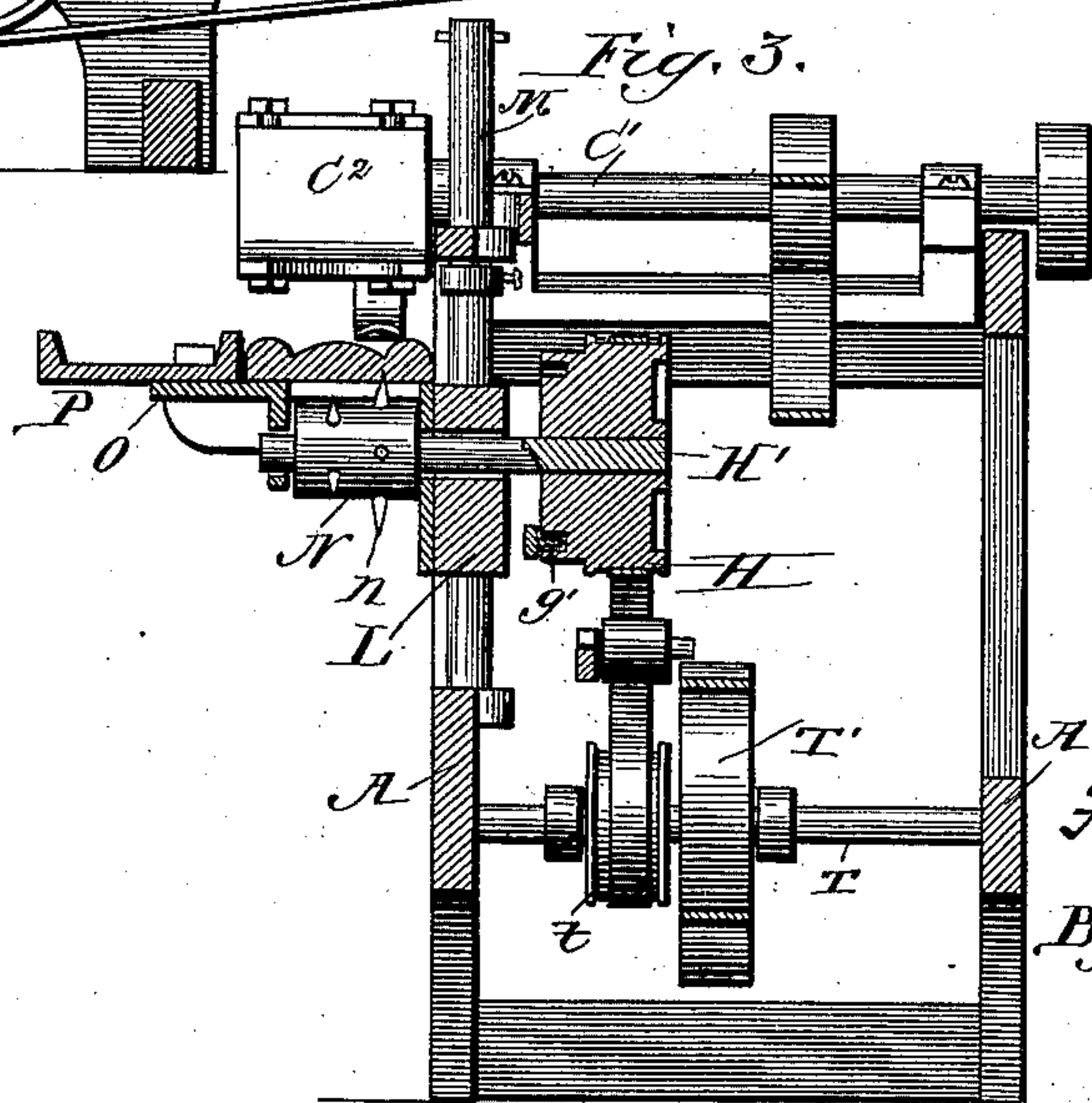
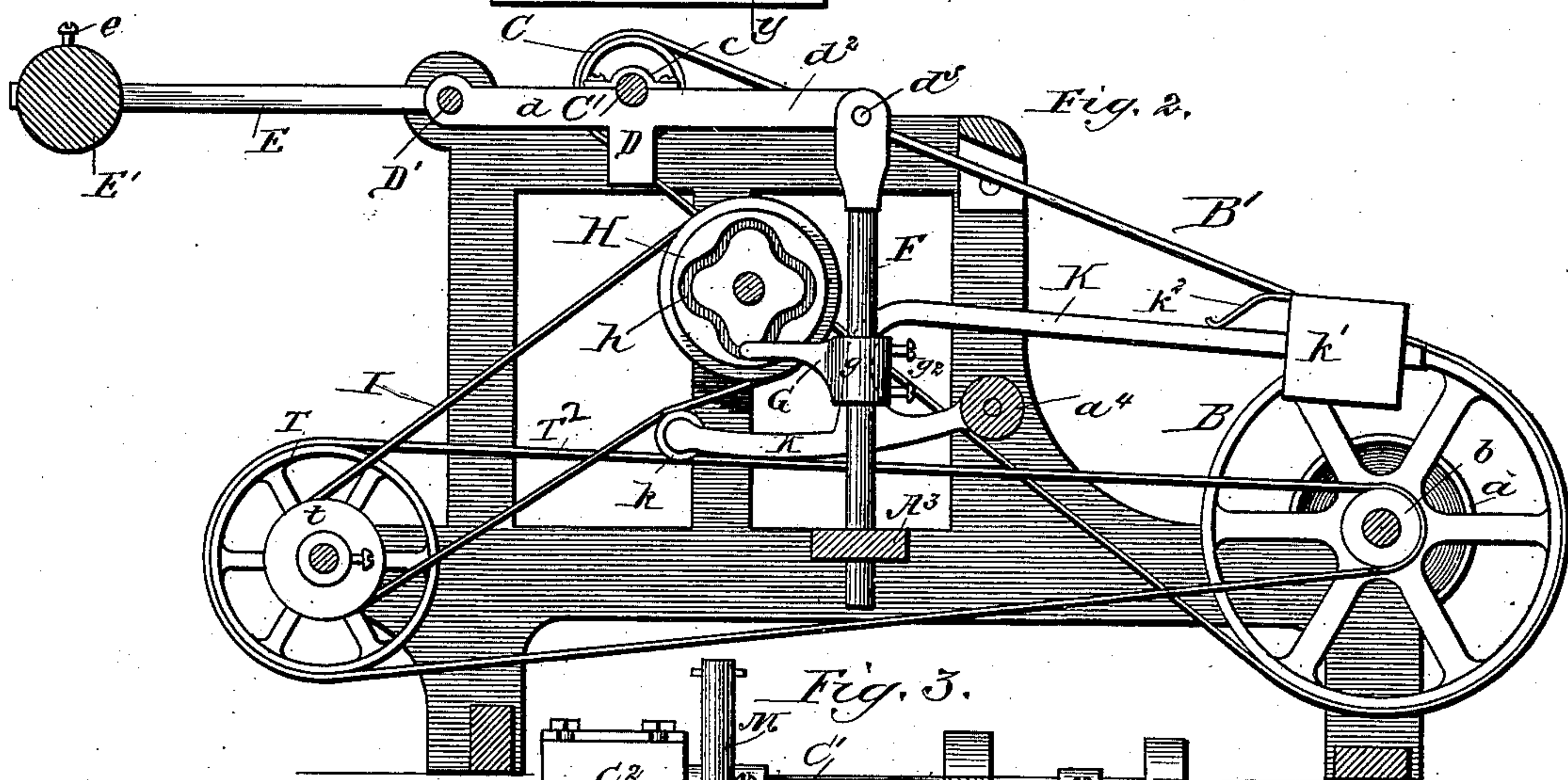
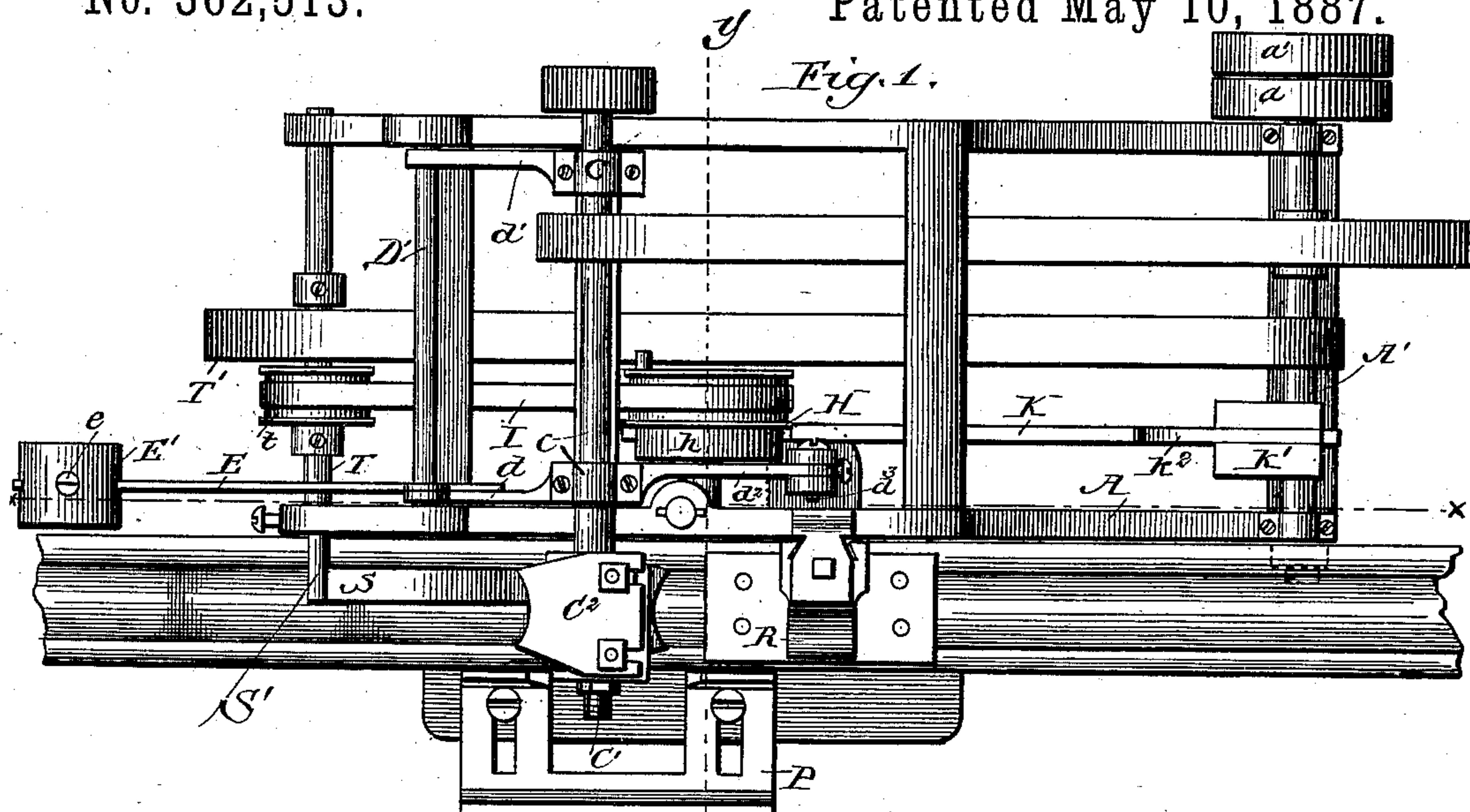
2 Sheets—Sheet 1.

F. G. JOHNSON.

MOLDING MACHINE.

No. 362,513.

Patented May 10, 1887.



Witnesses,
W. Rossiter.
F. Mills.

Inventor,
Frank G. Johnson
By, Price T. Fisher
His Attys.

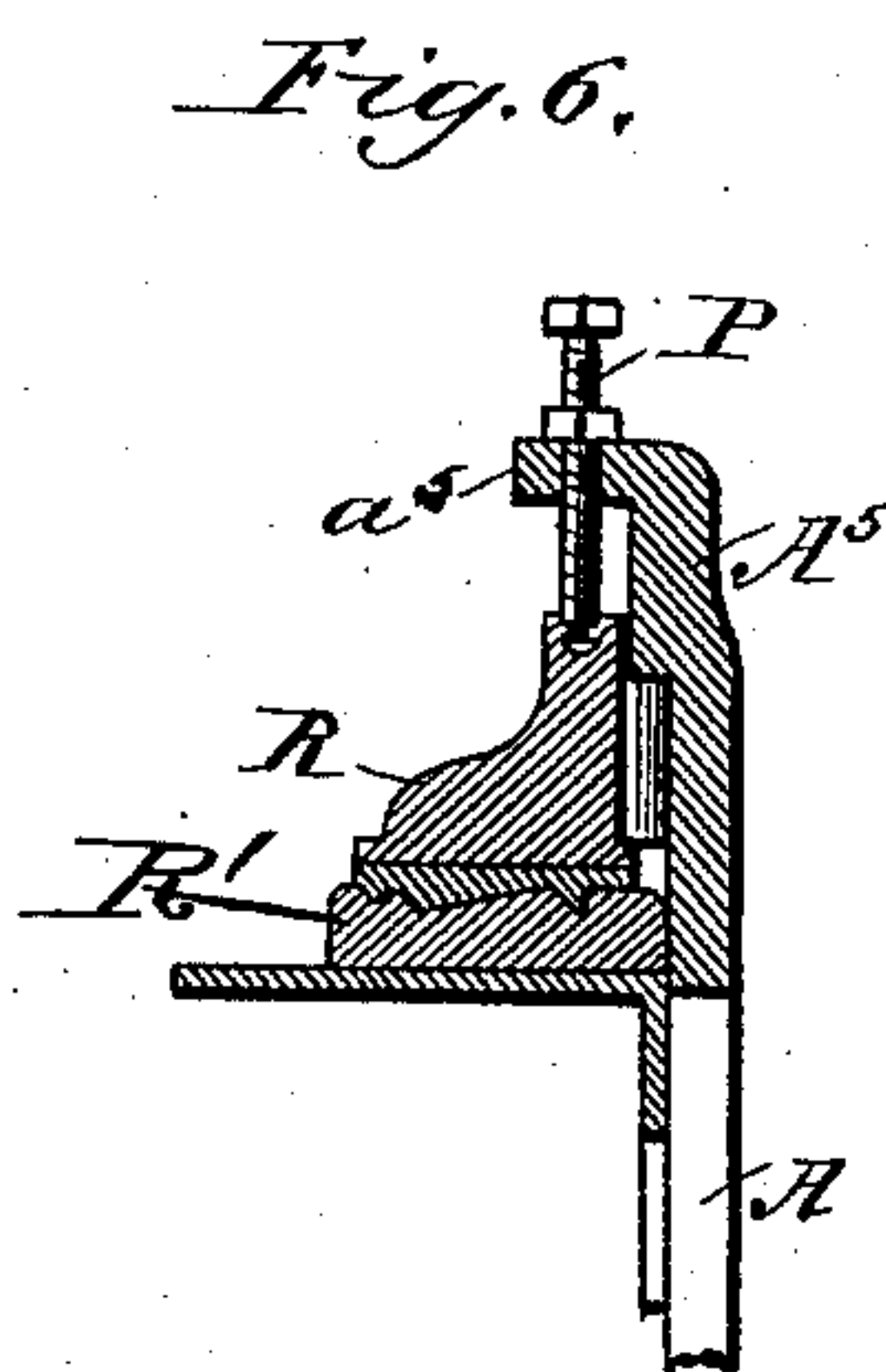
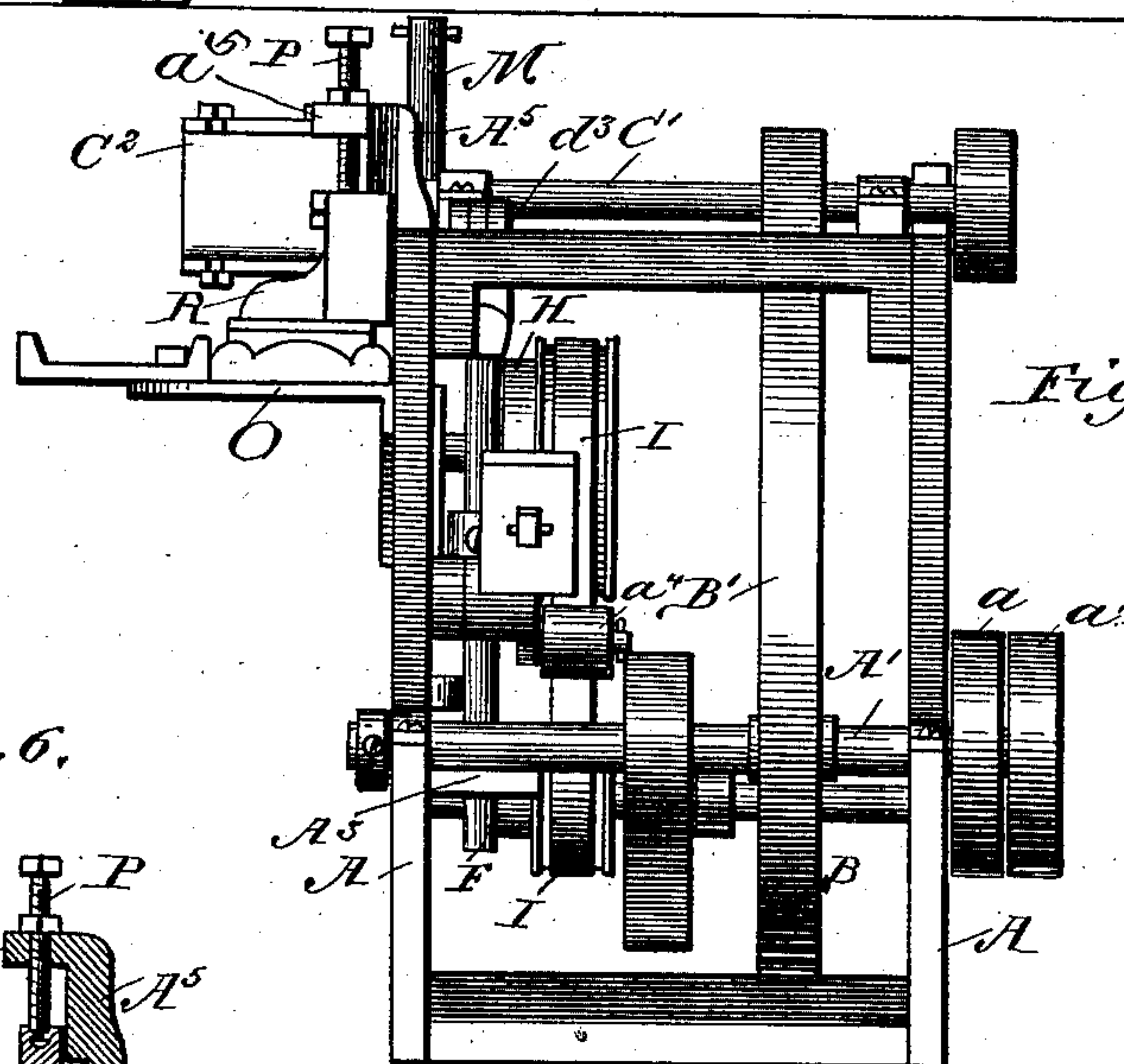
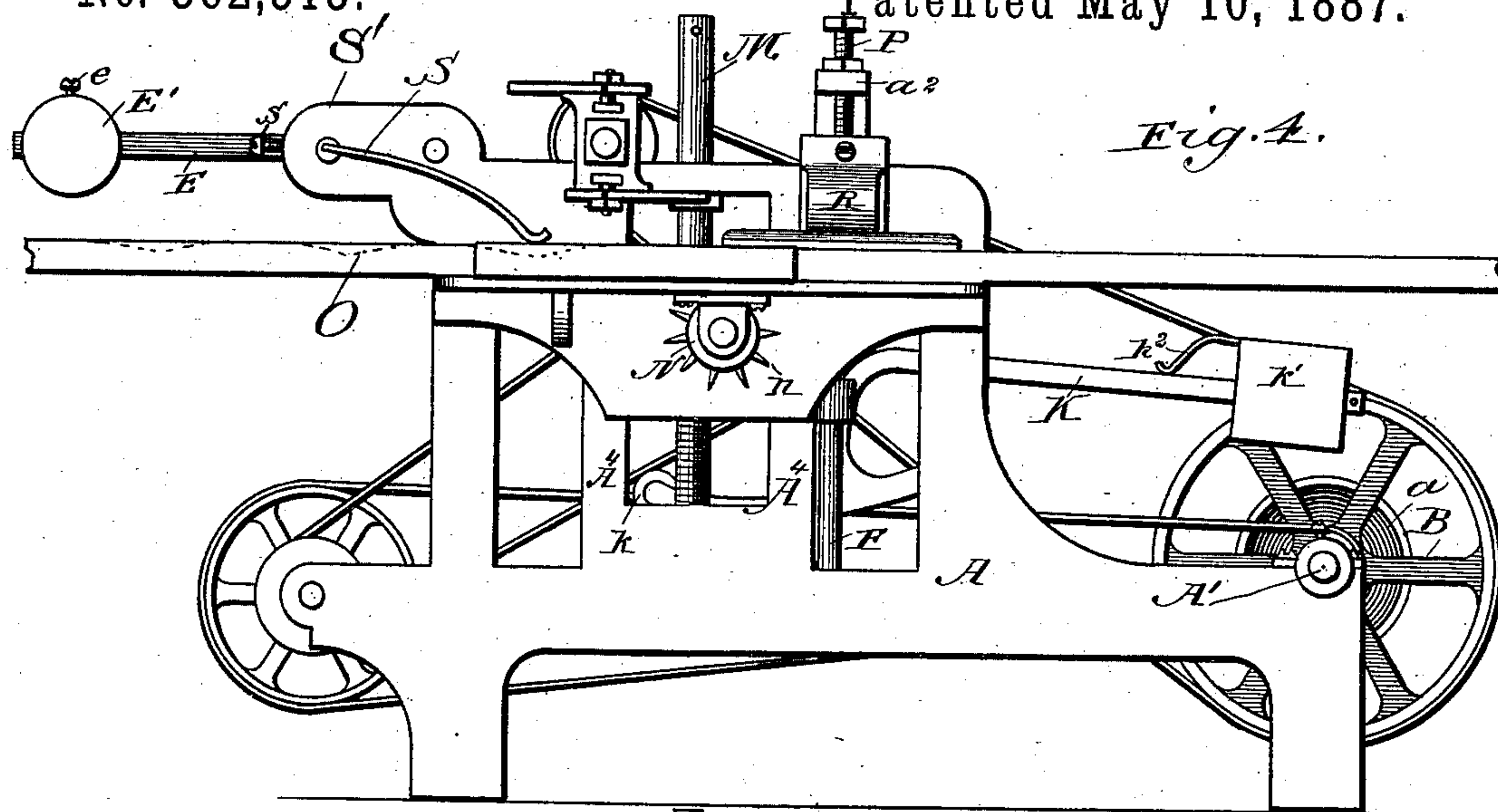
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UNITED STATES PATENT OFFICE.

FRANK G. JOHNSON, OF CHICAGO, ILLINOIS.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 362,513, dated May 10, 1887.

Application filed June 8, 1886. Serial No. 204,454. (No model.)

To all whom it may concern:

Be it known that I, FRANK G. JOHNSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Molding-Machines, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention has for its object to provide an improved machine for forming moldings with "waves" or similar irregularities in the direction of their length; and to this end my invention consists in various novel features of construction, hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of this specification.

Figure 1 is a plan view of my improved molding-machine. Fig. 2 is a view in vertical longitudinal section upon line xx of Fig. 1. Fig. 3 is a view in vertical transverse section upon line yy of Fig. 1. Fig. 4 is a view in side elevation. Fig. 5 is a view in front end elevation. Fig. 6 is a detail view in vertical section of the feed-table and the adjusting feed-block above the same.

A designates the main frame of the machine, in the front of which is journaled the main shaft A' , that is provided at one of its ends with the usual fast and loose pulleys, a and a' . Upon the shaft A' is also keyed the belt-pulley B, from which leads the belt B' , that passes over the small pulley C of the spindle C' , upon the outer end of which is carried the cutter-head C'' , of suitable construction.

The spindle C' of the cutter-head is journaled within suitable boxes, c , of the journal-bearing frame D, the rear arms, d and d' , of this frame being pivotally held upon the rod D' in such manner as to permit the journal-bearing c of the spindle C' to be reciprocated in vertical direction, in a manner to be presently explained. From the arm d of the journal-bearing frame D extends the counterbalance-rod E, upon which is held the counterbalance-weight E' , the position of this weight upon the bar being determined by means of the set-screw e .

My purpose in mounting the spindle C' of

the cutter-head in vertically-reciprocating bearings is to permit the cutter-head to rise and fall as the molding is passing beneath the same, in order that the knives of such cutter-head may cut into the surface of the molding at greater or less depth, in order to give to such surface an irregular or "wavy" appearance. The rod E and its weight E' , being connected to the journal-bearing frame D beyond its pivotal point, serve to counterbalance the weight of such frame and of the cutter-head and its spindle, and thus lessen the power necessary to impart to the cutter-head its vertically-reciprocating movement.

To the forward arm, d^2 , of the frame D is pivotally connected, as at d^3 , what I designate the "lifting-rod" F, the lower end of this rod being held in a manner free to slide by the bracket or plate A^3 projecting in from the side of the main frame. Upon the lifting-rod F is fitted the sleeve or hub g of the arm G, the end of which arm is provided with a finger, g' , that enters the cam-shaped groove h of the cam-wheel H, that is journaled upon the spindle H' and is driven by the belt I, that passes over the pulley t , mounted upon the shaft T and driven by the belt T^2 from the pulley b upon the shaft A' . The arm G is held in proper position upon the lifting-rod F by means of set-screws g^2 , which permit the arm to be shifted upon the rod when a cam-wheel of different character is employed to vary the style of irregular surface to be given to the molding, or when the height of the feed-table is changed.

From the side of the main frame A there is extended a stud or journal-pin, a^4 , upon which is pivotally hung a belt-tightener bar, K, having at one end the pulley k , bearing against the belt I, and at its opposite end a weight, k' , which serves to retain such pulley constantly against the belt. The weight k' is held on the bar K by means of the spring k^2 , so that the position of the weight can be readily varied to promptly maintain the tension of the belt.

Between the vertical bars A of one side of the main frame is fitted the sliding block L, in which is formed a threaded perforation to receive a correspondingly-threaded adjusting screw or shaft, M, that is journaled in the side of the main frame and serves to vary the

height of the sliding block with respect thereto. In this block L is also formed a journal-bearing for the spindle H', on the outer end of which spindle is carried the feed-wheel N, the teeth *n* of which project slightly through the top of the feed-table O, that is bolted to the side of the sliding block L, and is elevated and lowered therewith by means of the adjusting-screw M.

From the top of the main frame A rises the bracket A⁵, the overhanging portion *a*⁵ of which is provided with a threaded perforation to receive the adjusting-screw P, that carries at its end the presser-block R, to the lower face of which will be connected a bearing-block, R', having its lower face conformed to fit within the irregularities of the molding upon which the cutter-head is to act. To the rear portion of the main frame will be attached a presser-spring, S, that will bear upon the molding as it passes from beneath the cutter-head; or, if desired, several springs may be employed for this purpose. The rear end of this spring S is connected to the short rod or shaft S', held within a suitable seat or socket in the side of the main frame, the position of the rod being determined by the set-screw *s*, to regulate the force of the spring S. By placing the cam-wheel H and the feed-wheel N upon the same spindle H' and connecting the bearing of this spindle with the feed-table O, not only is the construction of the machine much simplified, but I am thereby enabled, also, at one operation, to adjust the feed wheel and table in unison to accommodate moldings of different degrees of thickness.

From the foregoing description of parts the operation of my improved machine will be seen to be as follows: The molding, to the surface of which a wavy or irregular contour is to be given, is placed upon the feed-table O and beneath the presser-block R', and is forced into the bite of the feed-roll N. By this feed-roll it is carried beneath the cutter-head, the knives of which, by reason of their vertically-reciprocating movement, cut into irregular shape the surface of the molding as it is fed through the machine, as seen in dotted lines of Fig. 4.

While in the foregoing description I have set out the preferred embodiment of my invention, it will be understood that the details of construction and the relative arrangement of parts can be varied by the skilled mechanic without departing from the spirit of my invention.

I am well aware that machines have heretofore been devised for forming "rustic" moldings, in which there was imparted to the cutter-head an up-and-down movement relative to the molding as it passed through the machine. In such machine, however, the spindle

of the cutter-head was mounted in separate vertically-sliding bearings, the reciprocating movement of which was effected by means of a cam having an irregular periphery. To such construction, therefore, I do not wish to be understood as making any claim.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a molding-machine, the combination, with the rotary cutter-head and a horizontal spindle for said cutter-head, of a vertically-swinging journal-bearing frame wherein said spindle is mounted, a lifting-rod for vertically swinging said frame, and a cam-wheel and an arm for imparting movement to said lifting-rod, substantially as described.

2. In a molding-machine, the combination, with the rotary cutter-head, of a horizontal spindle for said cutter-head, a vertically-swinging journal-bearing frame, D, wherein said spindle is mounted, a lifting-rod, F, for imparting swinging movement to said frame, a cam-wheel, H, having a groove in the side thereof, and an arm, G, connected to the lifting-rod and engaging with the cam-wheel, substantially as described.

3. In a molding-machine, the combination, with the rotary cutter-head and its spindle, of the swinging journal-bearing frame D, the counterbalance-rod E and weight E', the lifting-rod F, the arm G, and the cam-wheel H, substantially as described.

4. In a molding-machine, the combination, with the cutter-head and its spindle, of the vertically-movable journal-bearings for said spindle, the lifting-rod F, the adjustable arm G, the cam-wheel H and feed-roll N, and a vertically-movable spindle for said cam-wheel and feed-roll, substantially as described.

5. In a molding-machine, the combination, with the cutter-head and its spindle, of vertically-movable journal-bearings for said spindle, a cam-wheel in connection with said bearings for imparting movement thereto, a feed-wheel and vertically-movable table, and a bearing for the spindle of the feed-wheel and cam-wheel movable in unison with the feed-table, substantially as described.

6. In a molding-machine, the combination, with the cutter-head and its spindle, of the vertically-swinging frame D, pivoted as shown, the lifting-rod F, pivotally connected to the swinging frame D, the arm G, the cam-wheel H, engaging with said arm, the feed-wheel N, the spindle H', and the vertically-adjustable feed-table and bearing for the spindle H', substantially as described.

FRANK G. JOHNSON.

Witnesses:

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JAMES H. PEIRCE.