(No Model.)

4 Sheets—Sheet 1.

B. L. BRADLEY.

MOLDING MACHINE.

No. 376,704. Patented Jan. 17, 1888.

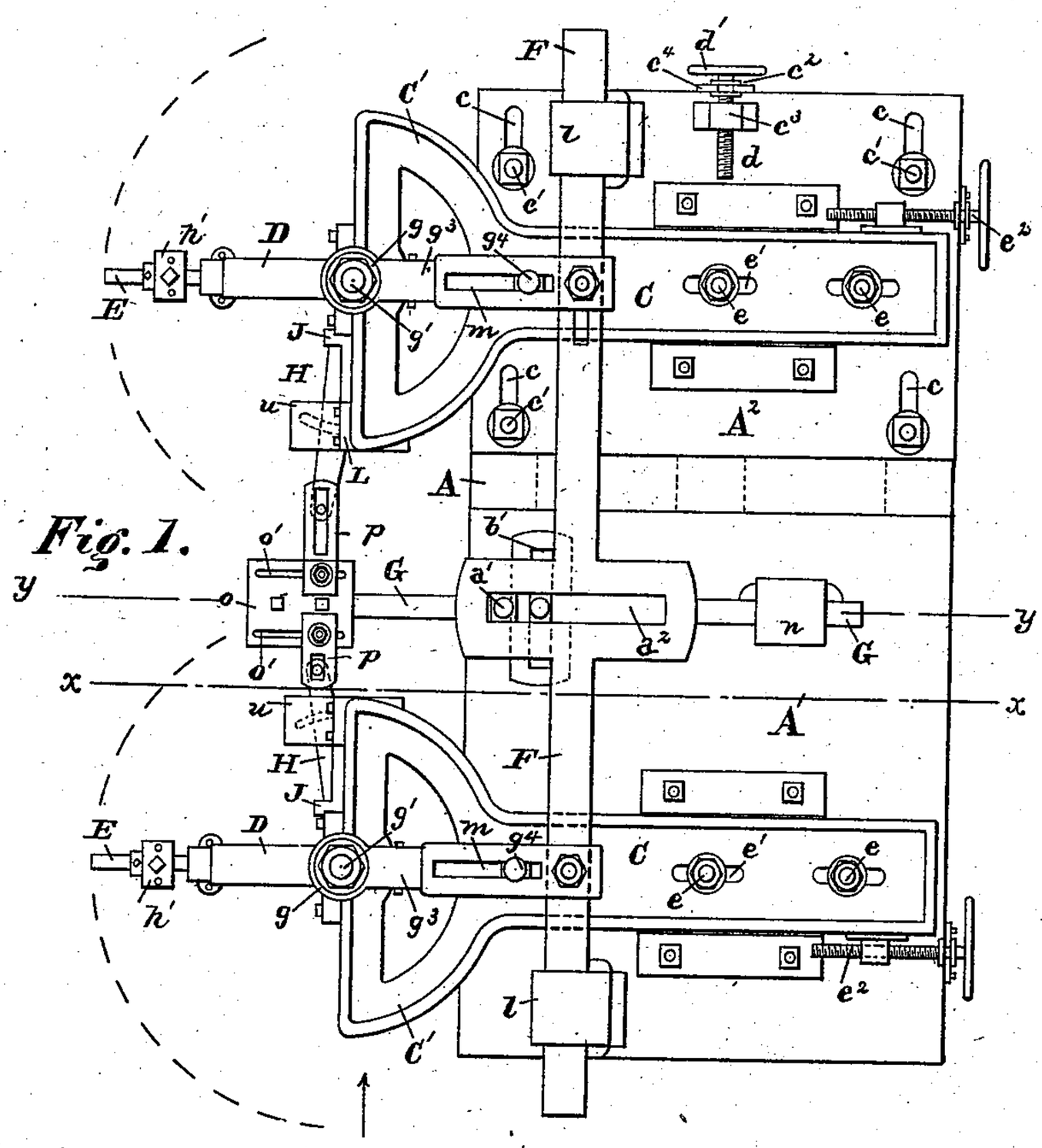

Fig. 1.

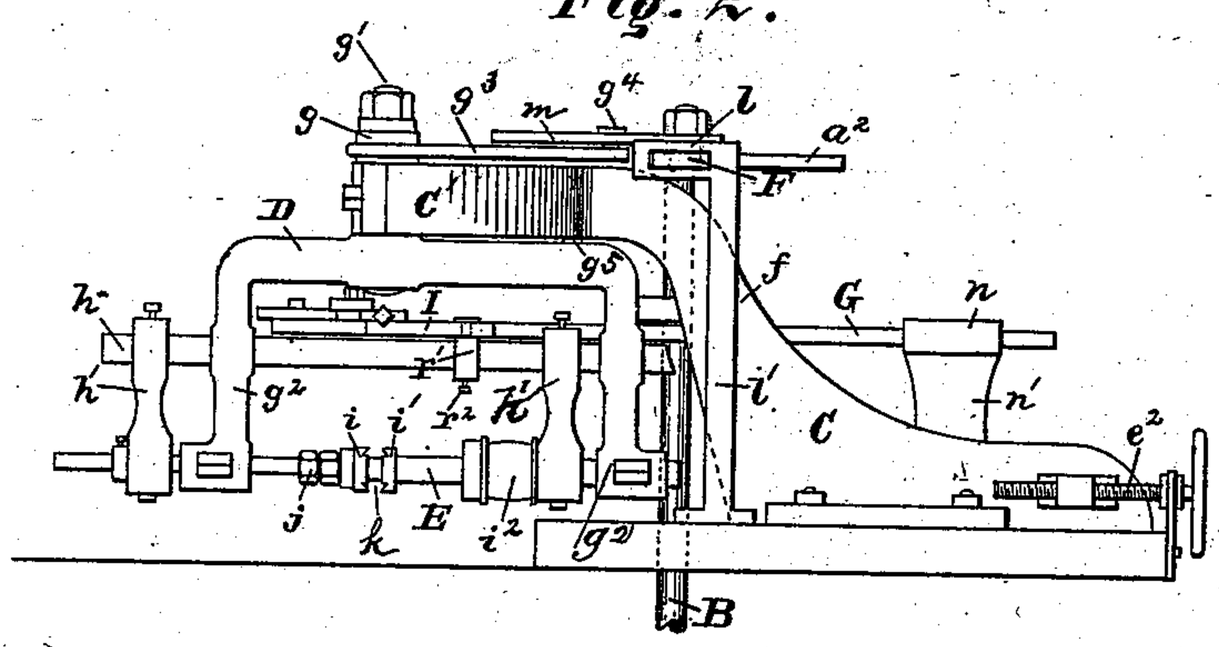

Fig. 2.

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(No Model.) 4 Sheets—Sheet 2.

B. L. BRADLEY.

MOLDING MACHINE.

No. 376,704. Patented Jan. 17, 1888.

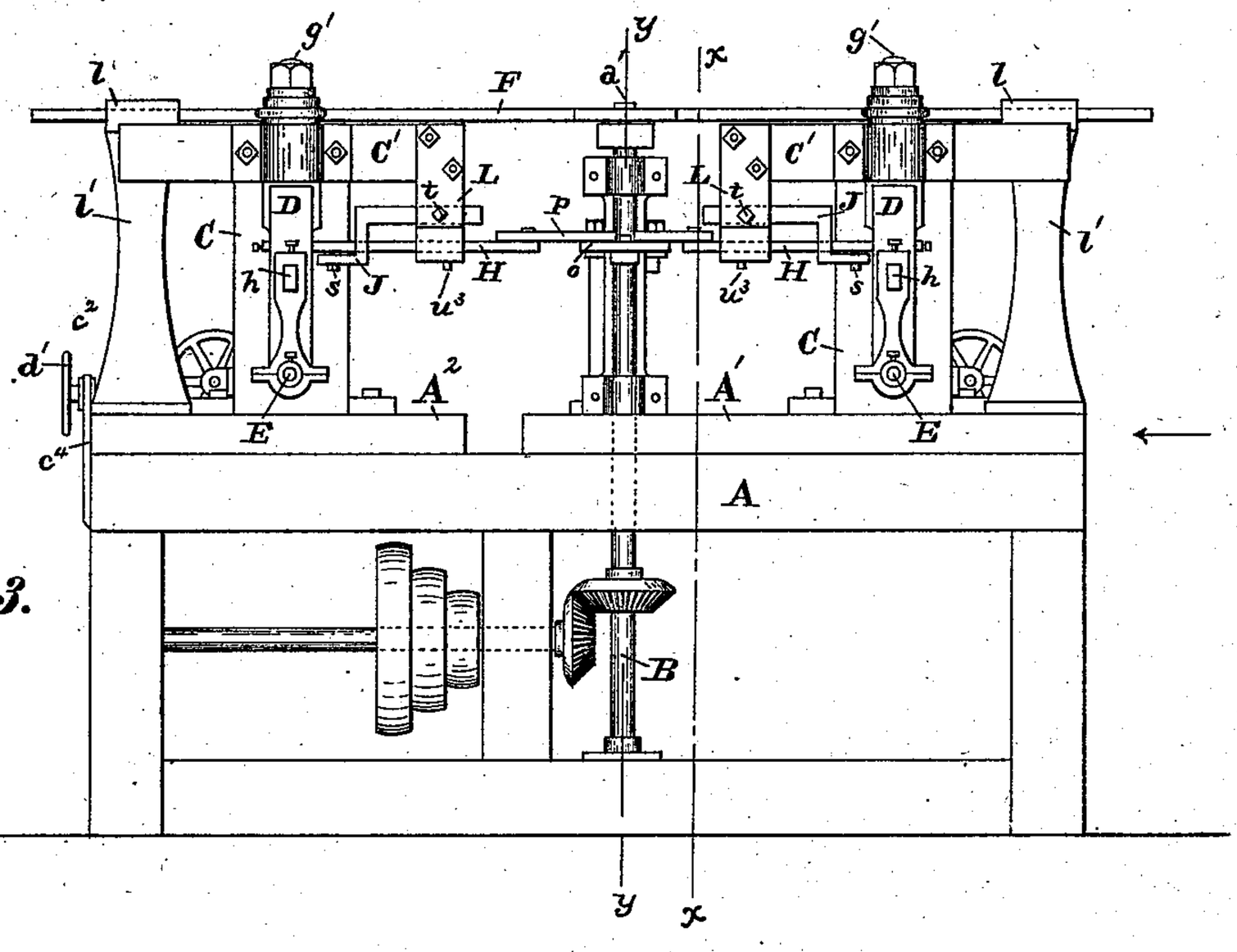


Fig. 3.

Fig. 4.

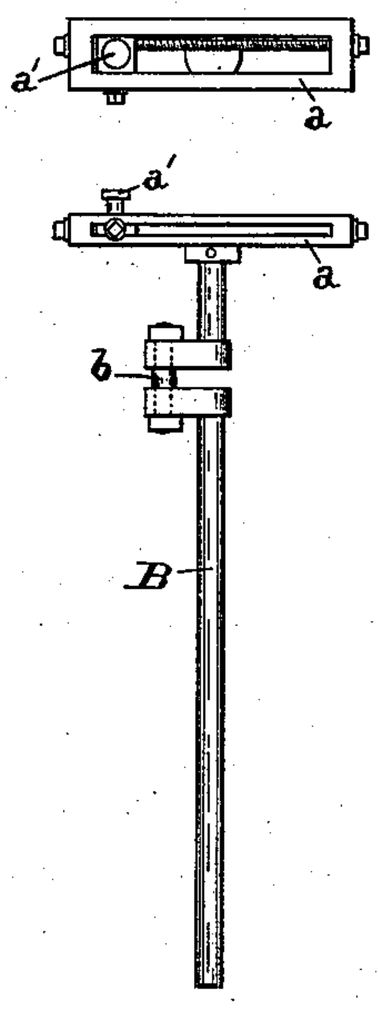


Fig. 5.

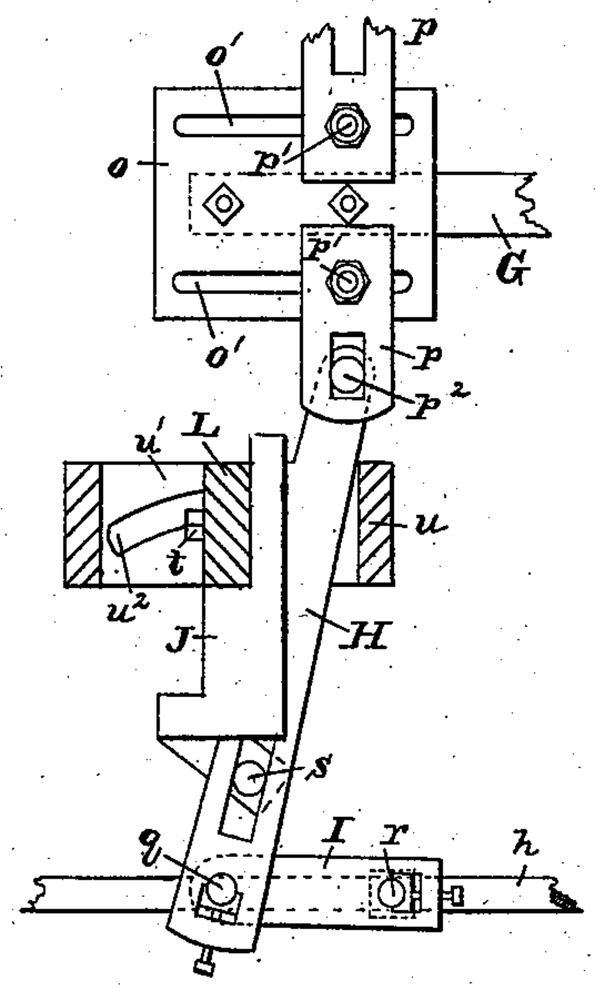


Fig. 6.

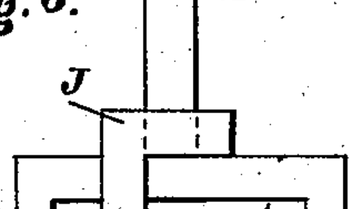
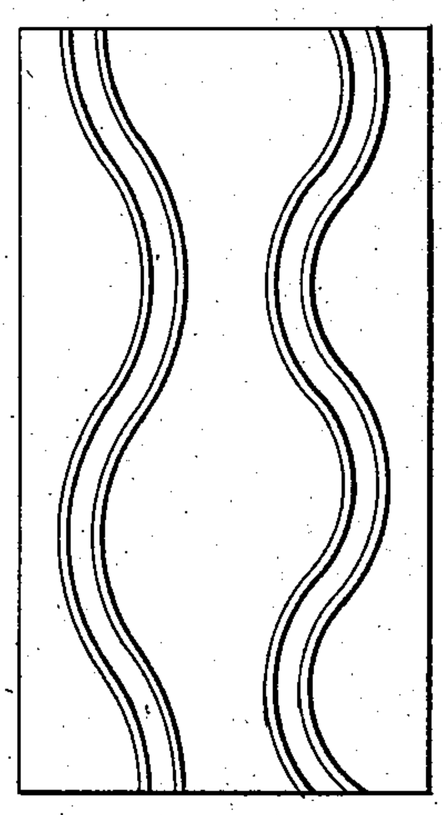


Fig. 7.



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(No Model.)

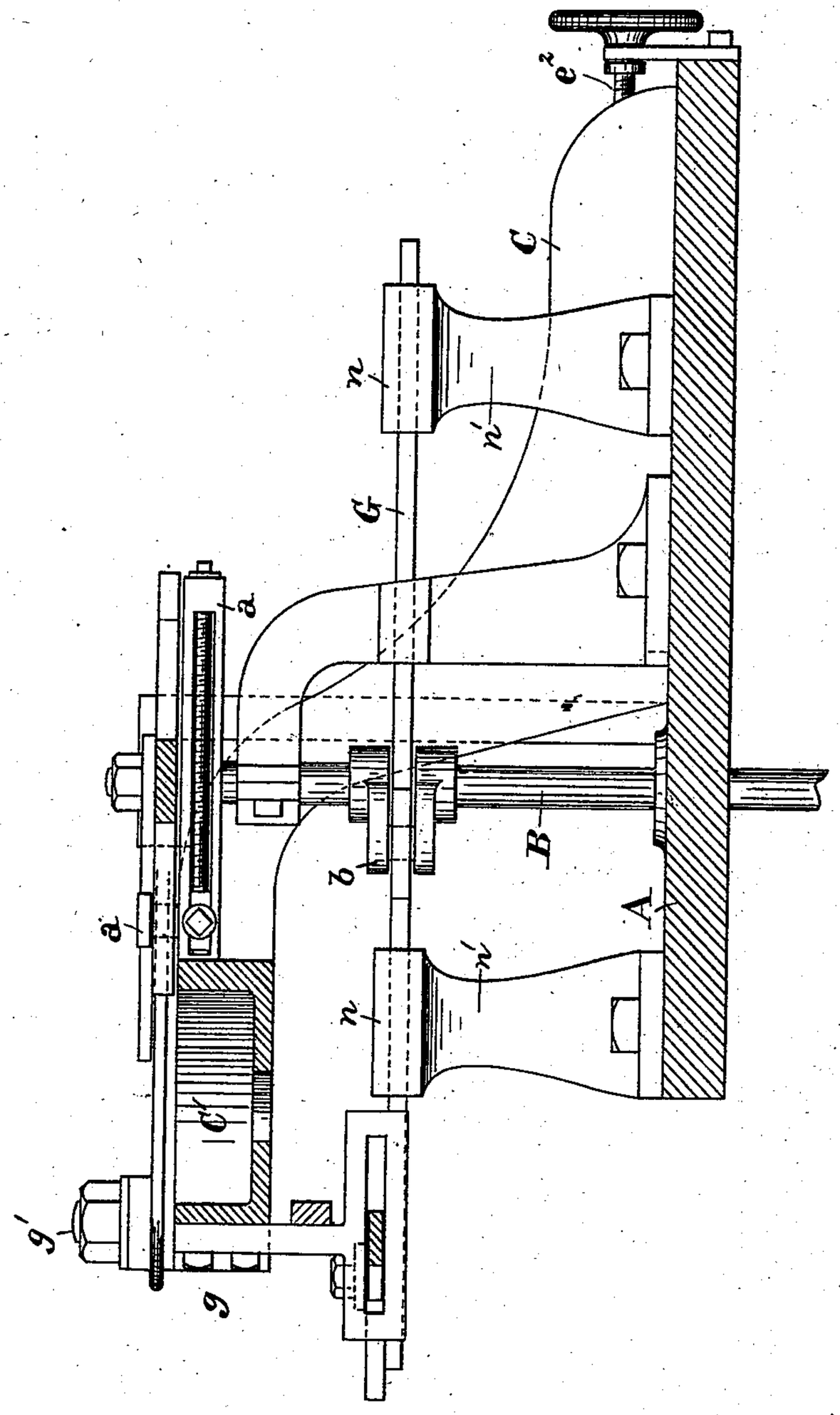
4 Sheets—Sheet 3.

B. L. BRADLEY.

MOLDING MACHINE.

No. 376,704. Patented Jan. 17, 1888.

Fig. 8.



WITNESSES:

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(No Model.)

4 Sheets—Sheet 4.

B. L. BRADLEY.

MOLDING MACHINE.

No. 376,704. Patented Jan. 17, 1888.

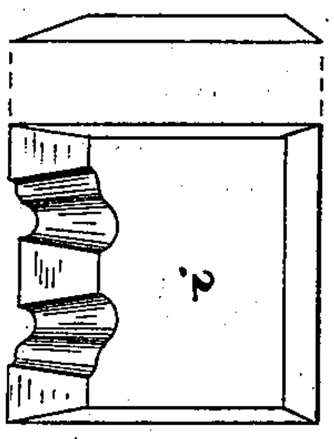

Fig. 10.

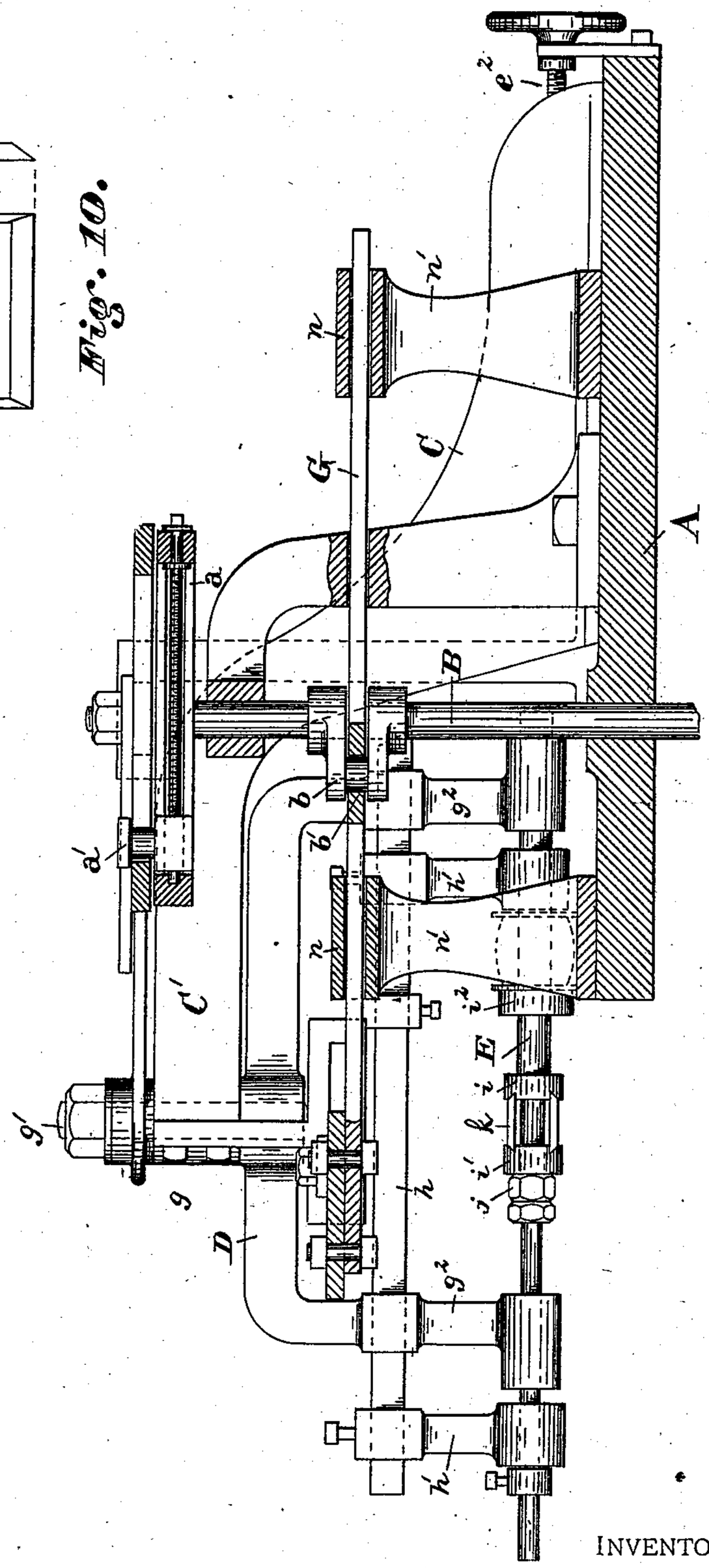

Fig. 9.

WITNESSES:

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UNITED STATES PATENT OFFICE.

BENJAMINE L. BRADLEY, OF BALTIMORE, MARYLAND.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 376,704, dated January 17, 1888.

Application filed June 14, 1886. Serial No. 205,057. (No model.)

To all whom it may concern:

Be it known that I, BENJAMINE L. BRADLEY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Molding-Machines, of which the following is a specification.

My invention relates to an improvement in wood-molding machines.

The object of the invention is to provide a machine for producing strips of wood-molding having serpentine grooves and beads, as hereinafter specified.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan or top view of the machine. Fig. 2 is a side elevation of the same. Fig. 3 is a front view of the machine. Fig. 4 shows two views,—a top and side view—of the crank-head. Fig. 5 is a view of the mechanism to shift the cutter-frame. Fig. 6 is a view of the hanger L and irregularly-shaped arm J. Fig. 7 is a view of a piece of wood-molding, showing the style of serpentine grooves or beads as cut by the machine. Fig. 8 is a vertical cross-section through the machine in the plane indicated by dotted line *x x* on Figs. 1 and 3. Fig. 9 is a vertical section through Figs. 1 and 3 in the plane indicated by dotted line *y y* thereon. Fig. 10 is an enlarged view of one form of cutter which I may employ.

A table, A, of ordinary construction, has a vertical shaft, B, which is provided at its upper end with a crank-head, *a*, having a longitudinally-adjustable pin, *a'*, whereby in a well-known manner the throw of the crank may be changed, and also has another crank, *b*, below the said crank-head.

The mechanism on the table by which the cutters are operated is arranged in duplicate. One of the duplicated parts is supported on a fixed base, A', and the other part on a movable base, A^2. This latter base has movement toward or from the fixed base, being provided with slots *c*, and having set-screws *c'*, fixed to the table A, occupying the slots. These set-screws retain the movable base wherever set. A horizontal screw, *d*, has two collars, c^2, and turns in a threaded stud, c^3, fixed on the movable base A^2. A standard, c^4, is fixed rigidly to the table A, and has at its top a slot which is occupied by the said screw *d*. Each of the two collars c^2 takes on an opposite side of the said standard c^4. It will thus be seen that by turning the wheel *d'* on the outer end of the said screw the base A^2 may be moved, as stated. The object of moving the base A^2 is to increase or lessen the distance between the two sets of cutting mechanism.

Each base A' and A^2 has a cutter-supporting arm, C, secured to it by bolts *e* in slots *e'*, formed in said arm, and a screw, e^2, on each arm, constructed and operating like the horizontal screw *d* above described, serves to adjust each cutter-supporting arm C independent of the other toward or away from the table-front, whereby the cutters, which are at *k*, may have their positions with respect to the table-front adjusted. The boards upon which the serpentine grooves or beads are to be cut will be passed in the direction of the dart across the table-front, resting upon a suitable support. (Not shown.) The two arms C have an upwardly-projecting part, *f*, which supports a head, C', which is semicircular in a horizontal plane. This semicircular head has a central bearing, *g*, for the pivot-bolt *g'* of a cutter-frame, consisting of a top horizontal bar, D, and two downwardly-depending arms, g^2. This cutter-frame is suspended by its pivot-bolt *g'* below the semicircular head C', and is capable of turning a half-revolution in a horizontal plane, and at all times, when the cutter-frame turns, the top horizontal bar, D, has bearing at g^5 against the under side of the semicircular head.

The cutter-shaft E is carried by the said cutter-frame D, and said shaft has rotary and longitudinal movement, the latter being provided for as follows: A bar, *h*, has bearings and slides freely endwise in the two downwardly-depending arms g^2. This bar *h* carries two vertical cross-bars, *h'*, provided with bearings, in which the cutter-shaft E rotates. Said shaft also passes freely through and turns in the two downward arms g^2 of the cutter-frame. It will thus be seen that the bar *h* and cutter-shaft E may be moved longitudinally in the cutter-frame D, and that the center shaft also revolves. This shaft E has a fixed and a movable collar, *i i'*, and jam-nuts *j*, for holding the cutters, of which any desired shape or well-known form may be used, and therefore are unnecessary to illustrate. It will be understood by every one

familiar with these machines that the cutters are gripped at *k* between the said two collars *i i'*. A pulley, i^2, on the cutter-shaft is designed for a belt (not shown) which is to pass over an elevated pulley on a line-shaft, the said elevated pulley having position directly above the pivot-bolt *g'* of the cutter-frame.

To provide for the coaction of the two pivoted cutter-frames D in turning, one frame being on each of the semicircular heads, a horizontal bar, F, is supported in bearings *l* on the top of standards *l'*. This bar is free to have endwise movement in its bearings. The bar F also has at its center, between the two sets of cutting mechanism, a cross-slot, a^2, which is occupied by the pin *a'* of the crank-head, the rotation of which latter, it will be seen, has the effect to impart an endwise-reciprocating movement to the bar F. The bar F carries two horizontal slotted arms, *m*, and each pivot-bolt *g'* of the cutter-frame has a rigidly-attached lever, g^3, which has position below the said arm *m*. A pin, g^4, on the lever g^3 passes up through the slot in the arm *m*, whereby when the bar F moves endwise the two cutter-frames D will be partly turned on their pivot-bolts *g'*, and thus change the position of the cutters at *k*.

To provide for the longitudinal movement of the cutter-shafts E, a second horizontal bar, G, has one end supported in a bearing, *n*, on the top of a standard, *n'*. This bar has endwise movement in its bearing, and has position below and crosswise of the other bar, F. Like the other bar, it has a cross-slot, *b'*, for the crank *b* on the vertical shaft B. By this means the bar G has an endwise-reciprocating movement given it. The end of the bar G carries a plate, *o*, provided with two parallel slots, *o'*. Two short arms, *p*, are secured to the plate *o*, each one by a bolt, *p'*, which passes through one of the slots *o'*. The short arms *p* thereby may be adjusted to the extent of the length of the slot *o'*. A lever, H, has one end pivoted at p^2 to one of the short arms. The other end is pivoted at *q* to a short arm, I, which is attached to the endwise-moving bar *h*, which shifts the cutter.

The means for attaching the short arm I to the bar *h* is a pivot, *r*, on a clip, *r'*, which is capable of sliding on the bar *h*. This clip has a set-screw, r^2, by which it is retained at any position on the bar *h* where it may be set. These parts are shown in detail in Figs. 2, 5, and 6. Both ends of the lever H, it will thus be seen, are pivoted, and said pivots p^2 and *q* both shift. The fulcrum-pivot of this lever H is seen at *s*. This fulcrum-pivot *s* projects upward at the end of an irregularly-shaped arm, J, which is secured by a bolt, *t*, to a hanger, L, attached to the semicircular head C'. This hanger L has at its lower end an inverted-T-shaped head, *u*, provided with a horizontal slot, *u'*, which the lever H occupies, and the bottom of this head *u* has a curved slot, u^2. This curved slot is concentric with the fulcrum-pivot *s*. The arm H is provided with a downward-projected pin, u^3, which occupies the curved slot u^2. The pin u^3 and curved slot u^2 prevent the lever H from moving endwise. It will thus be seen that the endwise movement of the bar G will cause the lever H to be turned on its fulcrum-pivot *s*, and thereby the cutter-frame D will partly revolve.

The mechanism embracing lever H, short arm I, irregularly-shaped arm J, and hanger L is in duplicate, one set connecting with each of the two short arms *p*. This duplication of mechanism and the means employed to connect the same enables wood-molding to be produced with two or more serpentine grooves, as shown in Fig. 7, and permits the curves of the two grooves to be adjusted relatively to each other, as the operator may desire.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a wood-molding machine for producing strips having serpentine grooves, the combination of two cutter-frames pivoted to turn in a horizontal plane, a lever, g^3, attached to the pivot-bolt of each cutter-frame, the vertical shaft B for driving the shafts E and G', a bar, F, supported in bearings adapted to have endwise movement and connected with each of the said levers g^3, and endwise-reciprocating bar G, receiving its movements directly from shaft B and transmitting movements to the frames D, and means to impart endwise-reciprocating movement to the said bars, as set forth.

2. In a wood-molding machine for producing strips having serpentine grooves, the combination of a table, A, two bases, A' A^2, on the table, one fixed and the other adjustable toward or from the fixed one, a cutter-frame mounted on each base and each frame pivoted to turn in a horizontal plane, a lever, g^3, attached to the pivot-bolt of each cutter-frame, a bar, F, supported in bearings adapted to have endwise movement and connected with each of the said levers g^3, adjustable jointed connections between the said cutter-frames, a rectilinear reciprocating bar receiving its movements from a shaft, B, and means to impart an endwise-reciprocating movement to the said bars, as set forth.

3. In a wood-molding machine for producing strips having serpentine grooves, the combination of a table, A, two cutter-supporting arms, C, each provided with means to adjust it independently of the other toward or away from the table-front, a cutter-frame pivoted to each arm, a lever, g^3, attached to the pivot-bolt of each cutter-frame, a bar, F, supported in bearings adapted to have endwise movement and connected with each of the said levers g^3, a slotted rectilinear reciprocating bar, G, receiving its movements directly from a crank on the main driving-shaft, the plate *o*, the short arm *p*, the hanger L, and the lever H, connecting the bar G to the frames D, and means to impart endwise-reciprocating movement to the said bars, as set forth.

4. In a wood-molding machine for producing strips having serpentine grooves, the combination of a cutter-supporting arm, C, an oscillating cutter-frame pivoted to said arm, a bar, *h*, in bearings in the cutter-frame and adapted to slide endwise therein, a rotary cutter-shaft, E, carried by said sliding bar, means, substantially as shown, to partly revolve the cutter-frame, and means, substantially as shown, to impart endwise movement to the cutter-shaft, as set forth.

5. In a wood-molding machine for producing strips having serpentine grooves, the combination of two cutter-frames pivoted to turn in a horizontal plane, a lever, g^3, attached to the pivot-bolt of each cutter-frame, a bar, F, supported in bearings adapted to have endwise movement and connected with each of the said levers g^3, means to impart an endwise-reciprocating movement to the said bar, an endwise-sliding bar, *h*, in each cutter-frame, a rotary cutter-shaft, E, carried by said sliding bar, a bar, G, extending crosswise of the bar first mentioned and adapted to have endwise movement, levers H I, connecting the last bar, G, with each cutter-shaft, and a shaft, B, provided with two cranks to impart movement to both of the bars F G, as set forth.

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

BENJAMINE L. BRADLEY.

Witnesses:

JOHN E. MORRIS,

JNO. T. MADDOX.