

W. F. MOODY.
Dovetailing Machines.

No. 137,315.

Patented April 1, 1873.

Fig. 1.

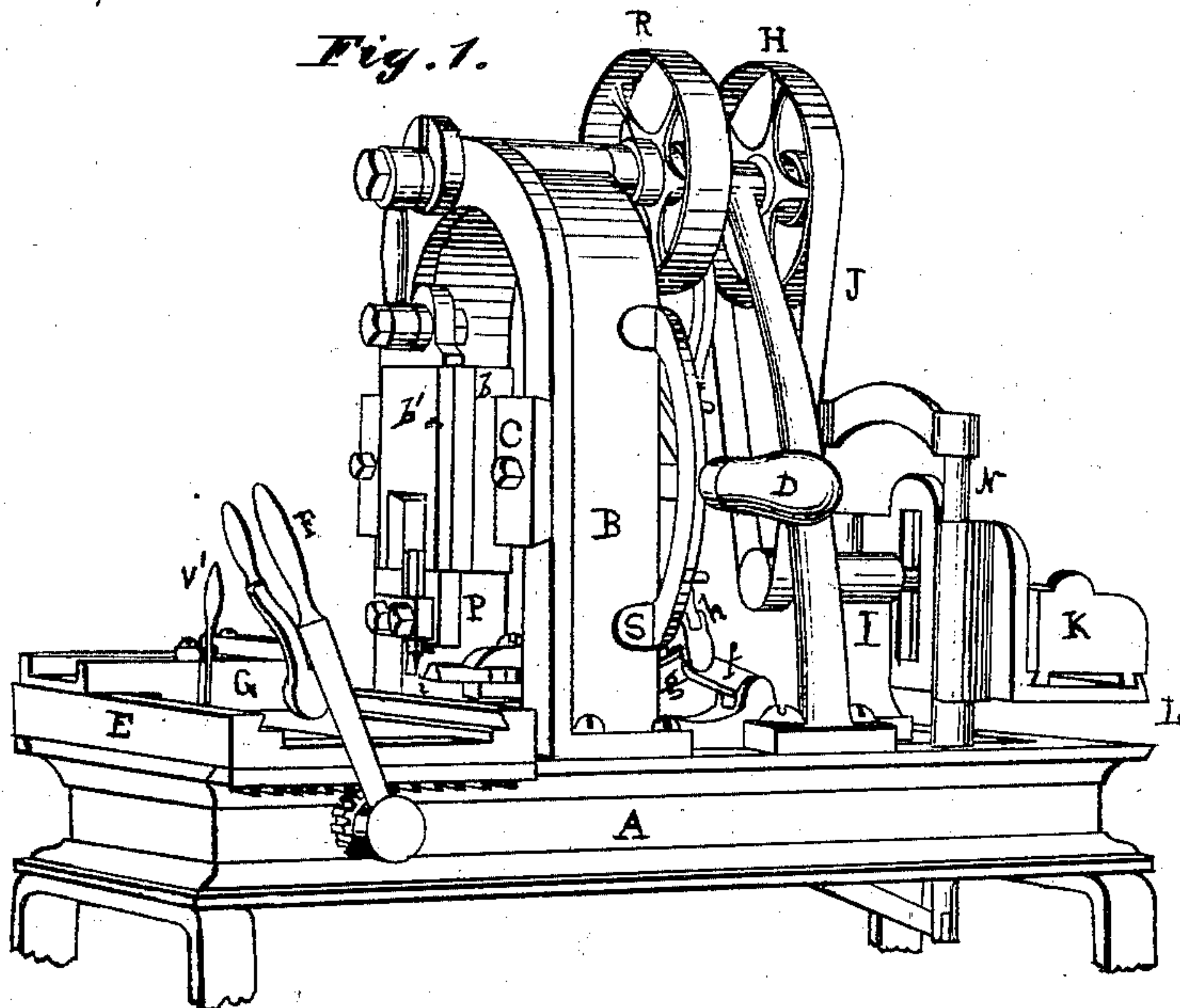
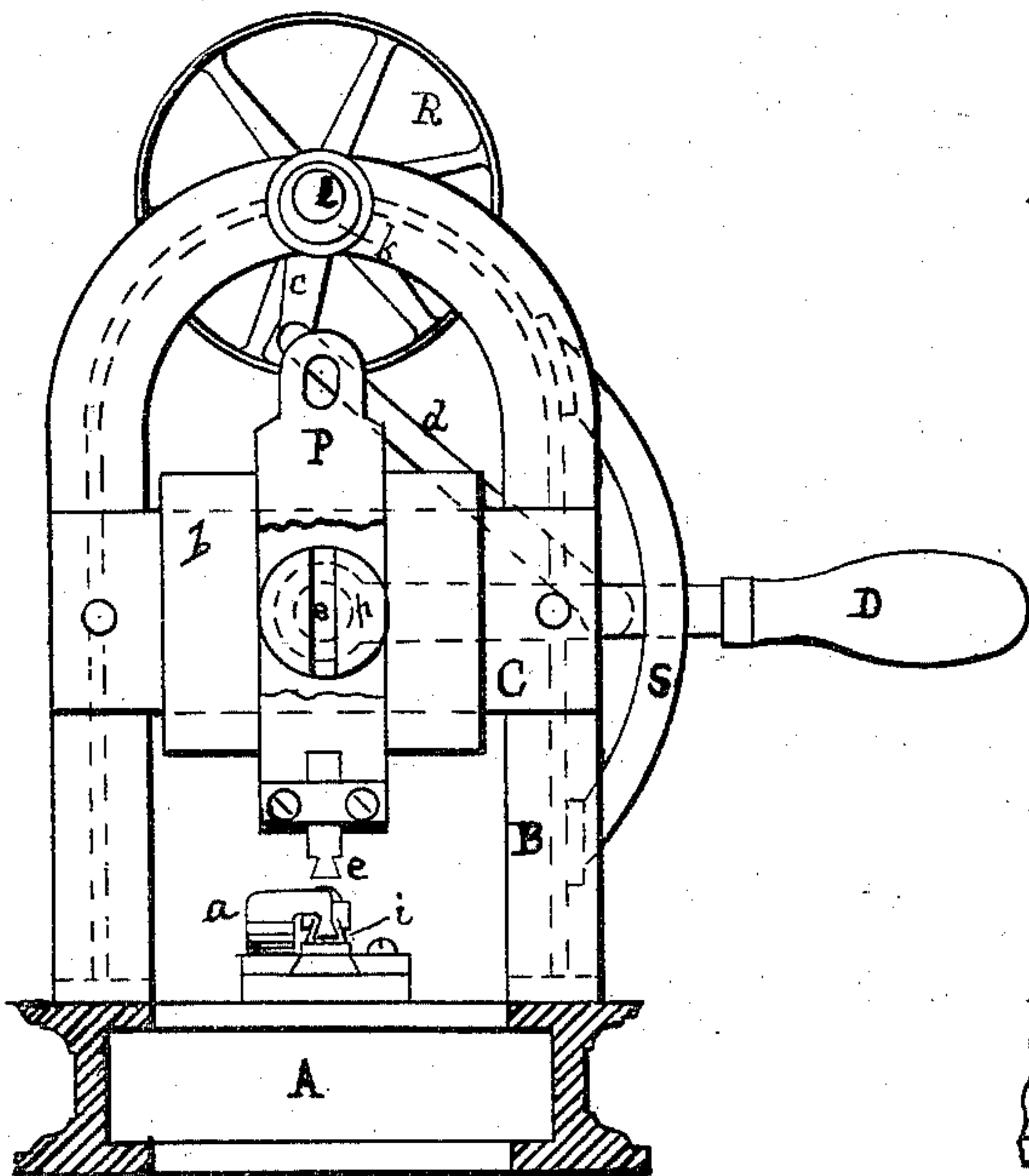
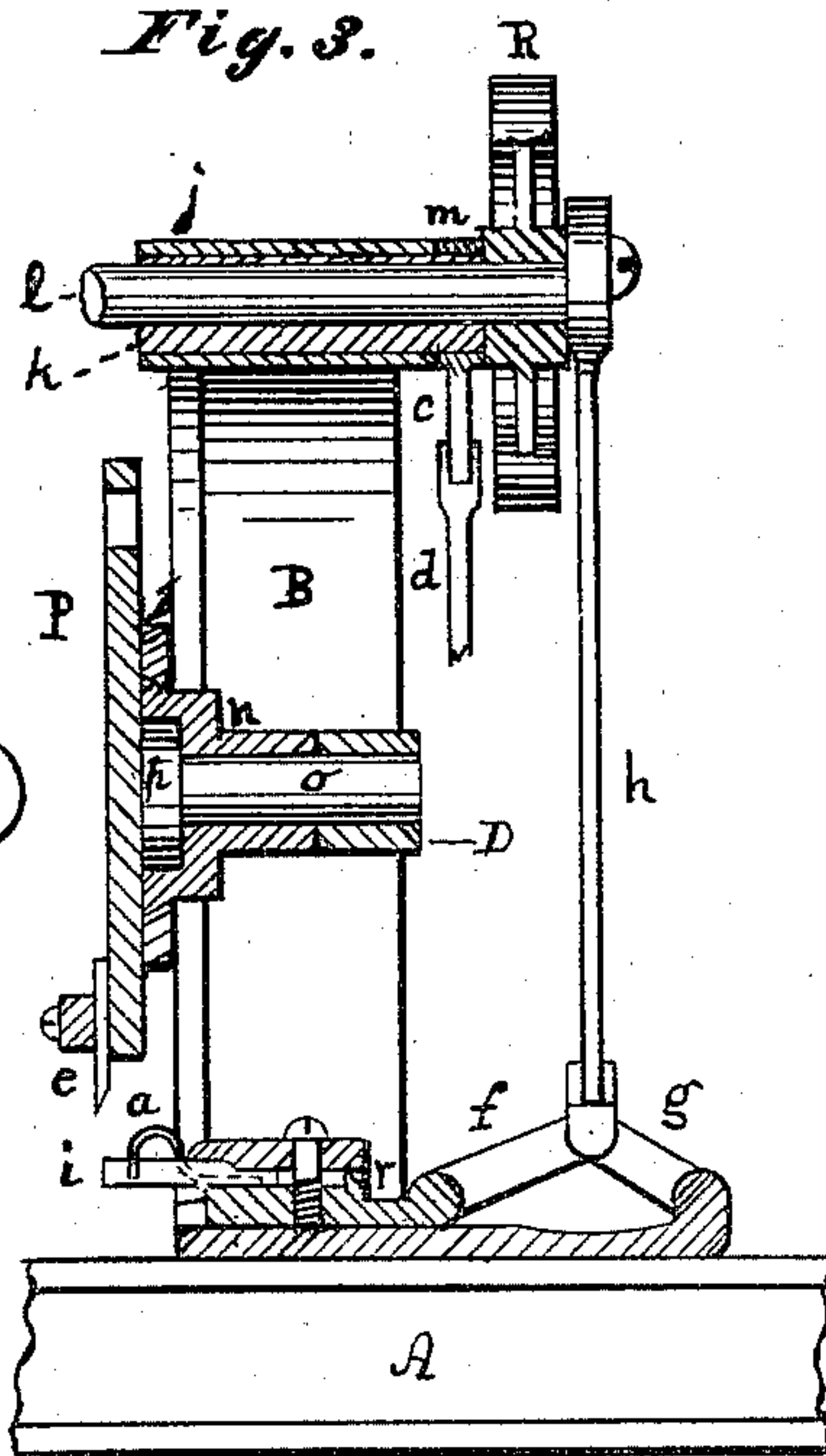


Fig. 2.



x

Fig. 3.



Witnesses.

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Fig. 4.

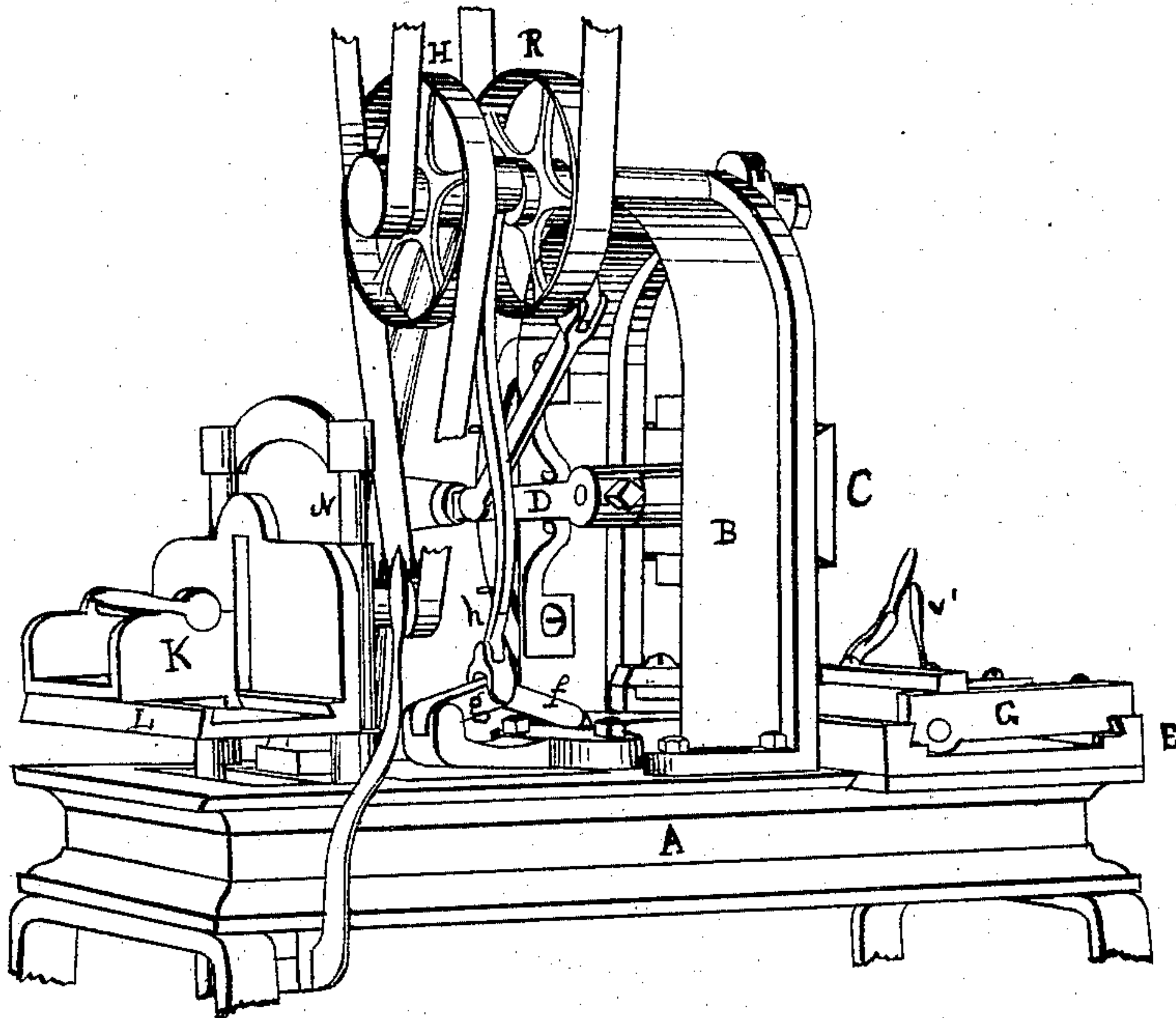


Fig. 5.

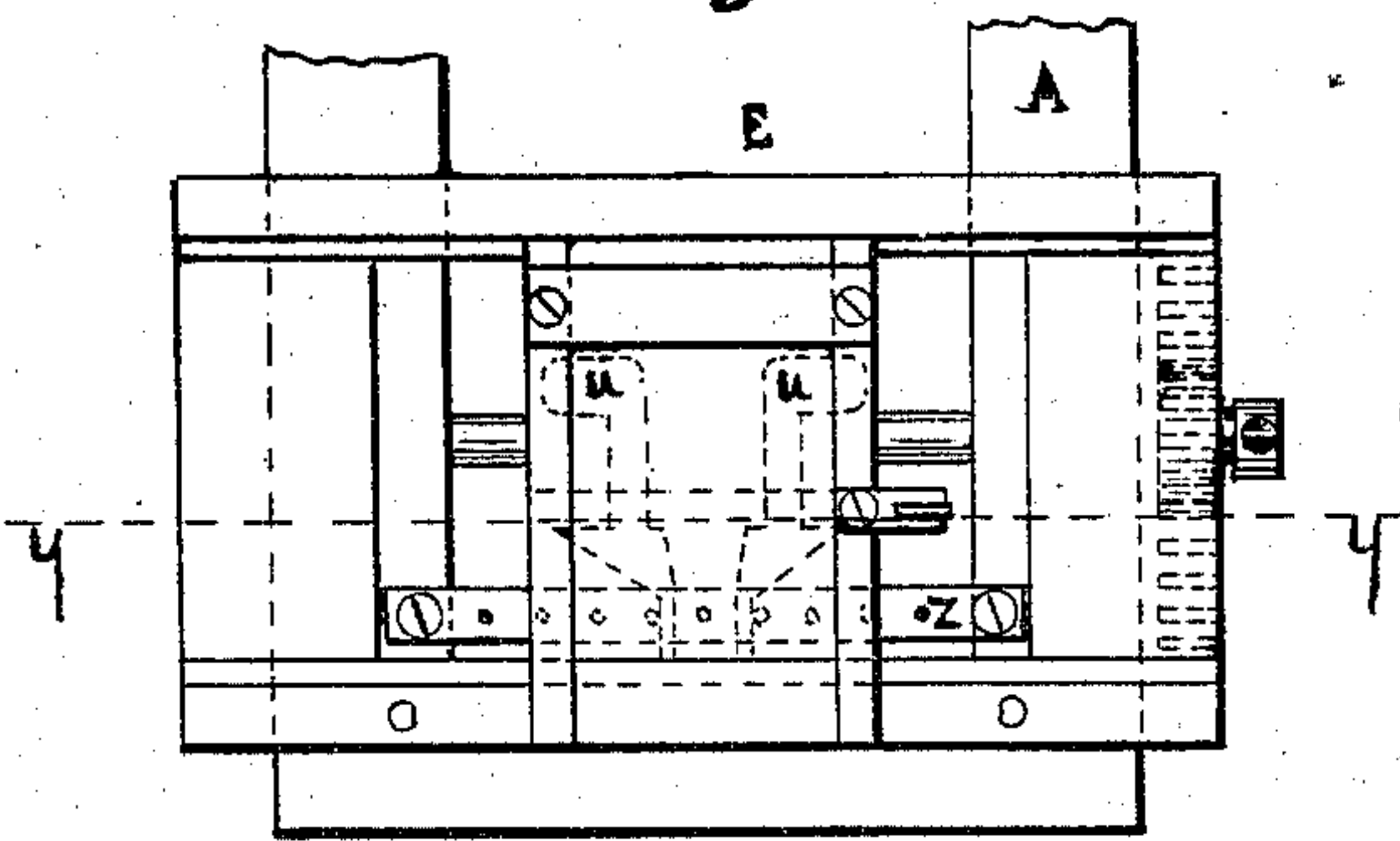


Fig. 6.

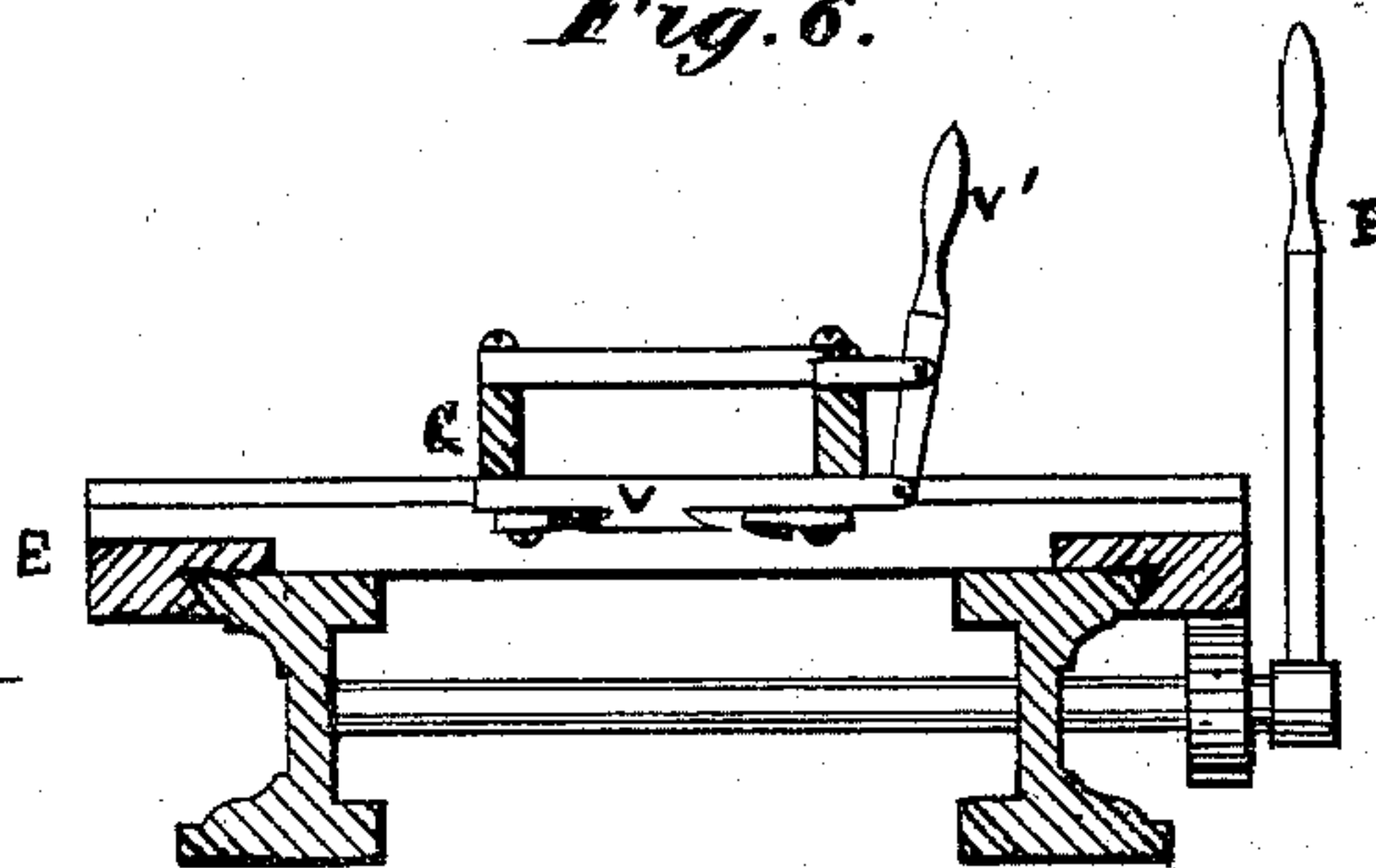


Fig. 9.

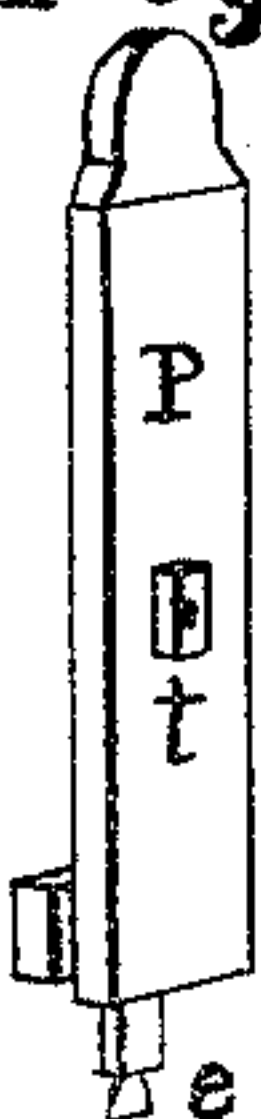


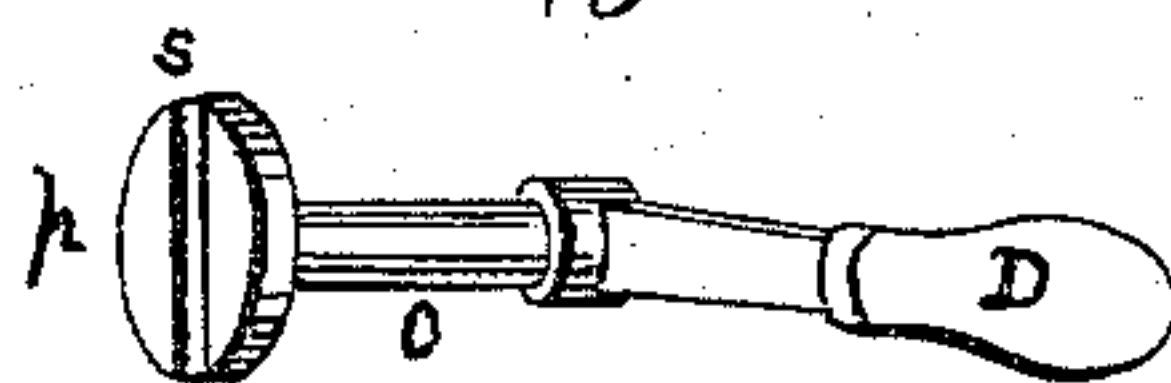
Fig. 7. i



Fig. 8. i



Fig. 10.



Witnesses.

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Inventor:
William F. Moody.
Inventor.

UNITED STATES PATENT OFFICE.

WILLIAM F. MOODY, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS HIS
RIGHT TO ELIJAH STONE AND CHARLES SWIFT, OF SAME PLACE.

IMPROVEMENT IN DOVETAILING-MACHINES.

Specification forming part of Letters Patent No. **137,315**, dated April 1, 1873; application filed
January 27, 1873.

To all whom it may concern:

Be it known that I, WILLIAM F. MOODY, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dovetailing-Machines, of which the following is a full description, reference being had to the accompanying drawing consisting of two sheets, in which—

Figure 1 is a perspective; Fig. 2, an end view, with some portions removed and cut away; Fig. 3, a longitudinal section of part of the machine taken at *xx* of Fig. 2. Fig. 4 is a perspective drawing of the machine in a position the reverse from that shown in Fig. 1; Fig. 5, a plan view of one end of the machine; Fig. 6, a section on line *yy* of Fig. 5; and Figs. 7, 8, 9, and 10, details.

Figs. 2, 3, 5, 6, 7, 8, 9, and 10 are enlarged.

The objects of my invention are to construct a machine which shall cut a blind dovetail as the same has heretofore usually been made by hand, and to combine with said machine a device for cutting the tenon part of the dovetail.

In the drawing there are represented in fact two independent machines, each driven by a separate pulley. These two machines can be run simultaneously, each requiring the attendance of one person, or either may be operated separately.

In the drawing, A represents the bed of the machine; B, an arch, secured to the bed A for the purpose of supporting some of the working parts of the machine. C is a plate, secured to B. *b b'* form a sliding head, made conveniently of two pieces bolted together, having an opening through the same, in which the chisel-head P moves. I use two chisels, *e* and *i*, the former attached to P and moving vertically, the other having a horizontal movement. Fig. 7 is a top view, and Fig. 8 an end view, of this chisel *i*. It is secured in any suitable manner to a sliding plate, *r*, moving between suitable guides, which plate *r* is operated by the levers *f g* and operating-rod *h*, the upper end of which is connected to the pulley R. To one of the guides, or some other suitable place, I attach a little piece of metal, *a*, having a tongue extending over into the chisel *i* so arranged as not to interfere with its movement. Its object is to clear the cuttings from the chisel. In the top of B is a

bearing, *j*, within which is an eccentric sleeve, *k*, through which sleeve the shaft *l* passes. To this sleeve *k* is permanently secured a collar, *m*, and to this collar *m* is permanently connected a short lever, *c*. *d* is another lever, the upper end of which is pivoted to the end of the lever *c*, and the other end is pivoted to the lever D, so that when the shaft *o* is partially rotated by the lever D, the eccentric sleeve *k* will also be partially rotated. R is the pulley which drives the shaft *l*. The chisel-head P is operated by means of the devices connected thereto and to the shaft *l*, in the usual manner. The plate C has a hole in the center, and is provided with a hub, *n*, which may be cast upon the plate, in which hub and opening the shaft *o* and head *p*, which is secured to the shaft *o*, are placed. The end of the shaft *o* is secured in any suitable manner to the lever D, by means of which the shaft can be rotated. The movement of the lever D is limited by means of the pins placed in the bar S, or in some other suitable manner. The head *p* has in its face a slot, *s*, which is naturally in a vertical position. To the under side of the chisel-head P is secured a piece of steel, *t*, fitted to the slot *s* in the head *p*. The cutting-edge of the chisel *e* is made as wide as the narrowest portion of the dovetail, and its sides recede from the cutting-edge at an angle corresponding with the angle of the dovetail. The chisel *i* is three-sided, its form and size corresponding with the form and size of the dovetail to be made.

Figs. 5 and 6 represent the feeding devices used at one end of the machine. They are similar to those now in use for analogous purposes, except that they are so constructed that the parts which hold the board to be operated upon may be automatically moved either to the right or left at the same time that the feeding devices are withdrawn. E is a frame having a forward and backward movement upon the bed A, by means of the lever F and rack and pinion constructed as usual. G is a frame to receive the board to be operated upon, provided with the usual clamping device for holding the board in place. To the under side of this frame are secured two springs, *u u'*, of the form shown by the dotted lines in Fig. 5. *v* is a sliding bar, having on its under side two angular recesses so arranged that as the bar is moved to the right or left one spring will

be held up close to the under side of the frame; at the same time the loose end of the other spring will be far enough therefrom to engage with the pins on the bar *z*. This bar *v* is operated by the lever *v'*. *z* is a cross-bar, bolted to the bed A, in which are placed a number of projecting pins, located as far apart as the required distance between two dovetails.

The parts of the machine so far described are those used in cutting the dovetail proper.

The devices upon the other end of the machine are used to cut the tenon portion of the dovetail, and are similar to devices now in use for the same purpose. This portion of the machine is driven by means of the pulley H, which runs independently of the pulley R. I is a bit, used for cutting the tenon, driven by the belt J. K is a receptacle for the boards to be operated upon, which can be moved laterally on its table *h*, and this table is supported, and has a vertical movement, upon the upright rods N, as is customary.

The operation of the principal part of this machine is as follows: The piece to be dovetailed is secured in the frame G and is carried to the chisels with the frame E by means of the lever F and the rack and pinion. The dovetail having been cut the frame is carried back by the use of the lever F, and the outer point of the loose spring beneath G coming in contact with one of the pins in *z*, the cam-like form of the spring causes the frame G to move laterally, while the frame E is being withdrawn directly. The required number of dovetails having been cut in one end of the piece of wood, it is reversed, the position of the bar *v* changed by means of the lever *v'* so as to release the spring, which before was held close to the under side of G by the bar *v*, and the other spring held down, when the operation described can be repeated, the direction in which the frame G moves being changed. This portion of the dovetail is cut as follows: The two chisels *e* and *i*, operated by the pulley R and other devices described, cut alternately into the top and end of the wood, *e* moving vertically and *i* horizontally; but to complete the dovetail it is necessary that the chisel *e* should be carried down in each corner of the dovetail in an angular direction, which is accomplished as follows: By elevating the lever D, which is attached to the shaft *o*, the head *p* can be turned to any desired given angle, and, having been so turned, the chisel-head P, while it retains its vertical position, has at the same time an angular movement, because the steel guide *t*, on the inside thereof, moving in the slot *s*, which has been placed at an angle, will cause the chisel *e* to descend in an oblique direction into one corner of the dovetail; then, by depressing the lever D, and changing the position of the slotted head *p*, this chisel will be caused to descend in an angular direction into the other corner of the dovetail; at the same time this chisel *e* will descend a little further than when moving exactly vertically,

because, by the movement of the lever D, the position of the eccentric sleeve *k*, which is the bearing for the shaft *l*, has been changed through the action of the levers *c d*, bringing the shaft *l* a little lower than before, and, consequently, the chisel *e* must descend a little further than before. By making this chisel *e* descend a little further at the last strokes than before it is certain that the dovetail will be perfectly cleared from cuttings. The sliding head *b b'* when the lever D is raised or lowered will be moved a little to the right or left upon the plate C, and this movement will continue with each up-and-down movement of the chisel-head P, the parts thus accommodating themselves to the position required by the movement of the slotted head *p*.

When the chisel *e* is just as wide as the narrowest part of the dovetail to be cut, the parts should be so adjusted that this chisel will come in contact with the wood at the same time that the center of *t* passes the center of the head *p*; and if *e* be narrower than the dovetail the parts must be adjusted so that the chisel shall, when having its oblique or compound movement, enter the wood at the corner of the dovetail. By the use of a spring above and below the lever D this lever and the parts which it operates can be returned to their natural position. If one of the springs *u u'* be omitted the frame G will still have an automatic lateral movement in one direction.

I make a full-sized machine four feet long, twenty inches wide, with the arch B about twenty-eight inches high.

Two or more sets of chisels might be used at the same time.

There is nothing new in the operation of the other end of the machine.

It is evident that my machine can be used for making an open dovetail.

What I claim as new is as follows:

1. In a dovetailing-machine, the slotted head *p*, constructed and operating substantially as specified.
2. In a dovetailing-machine, the eccentric sleeve *k*, constructed and operating substantially as specified.
3. The sliding head *b b'*, in combination with the chisel-head P, all so constructed that by the lateral movement of the sliding head an angular or oblique movement can be given to the chisel-head while it retains its vertical position, substantially as specified.
4. The sliding frame G, when provided with one or more springs, *u*, in combination with the bar *z* provided with pins, substantially as and for the purpose specified.
5. The combination, in a dovetailing-machine, of the single vertical chisel *e* with the angular chisel *i* so as to form a dovetail-mortise with two chisels, substantially as specified.

Witnesses: WILLIAM F. MOODY.
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