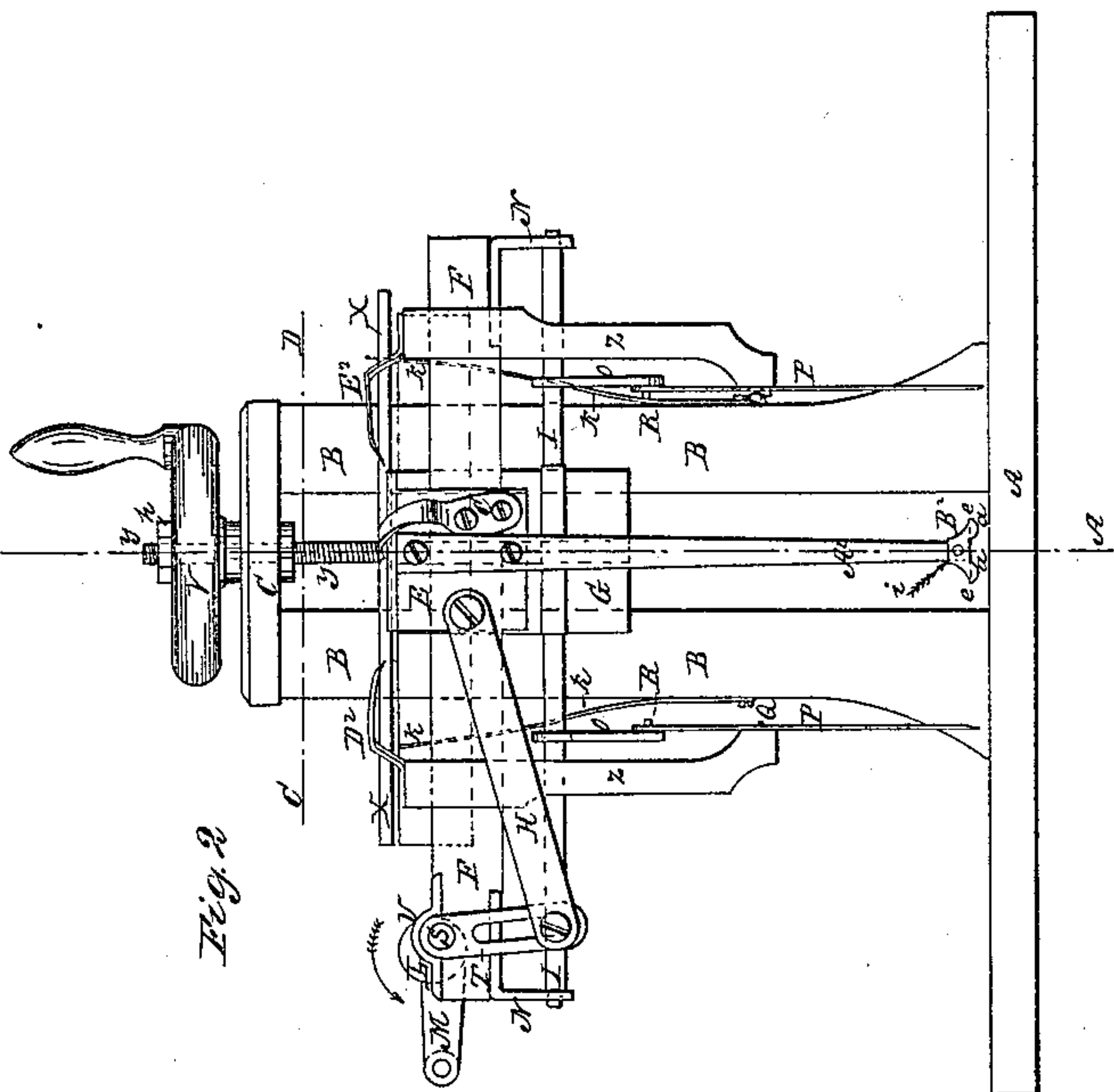
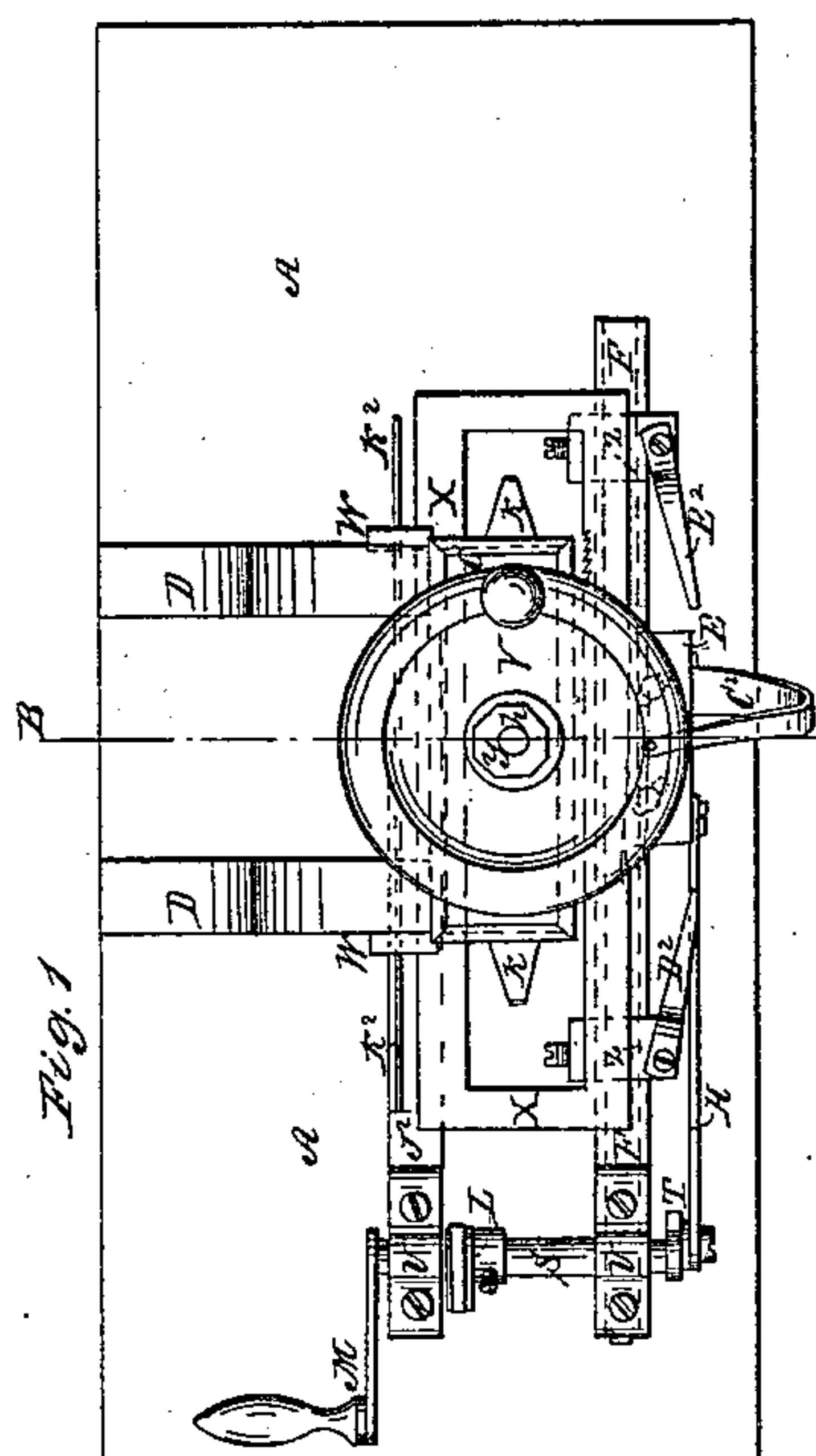
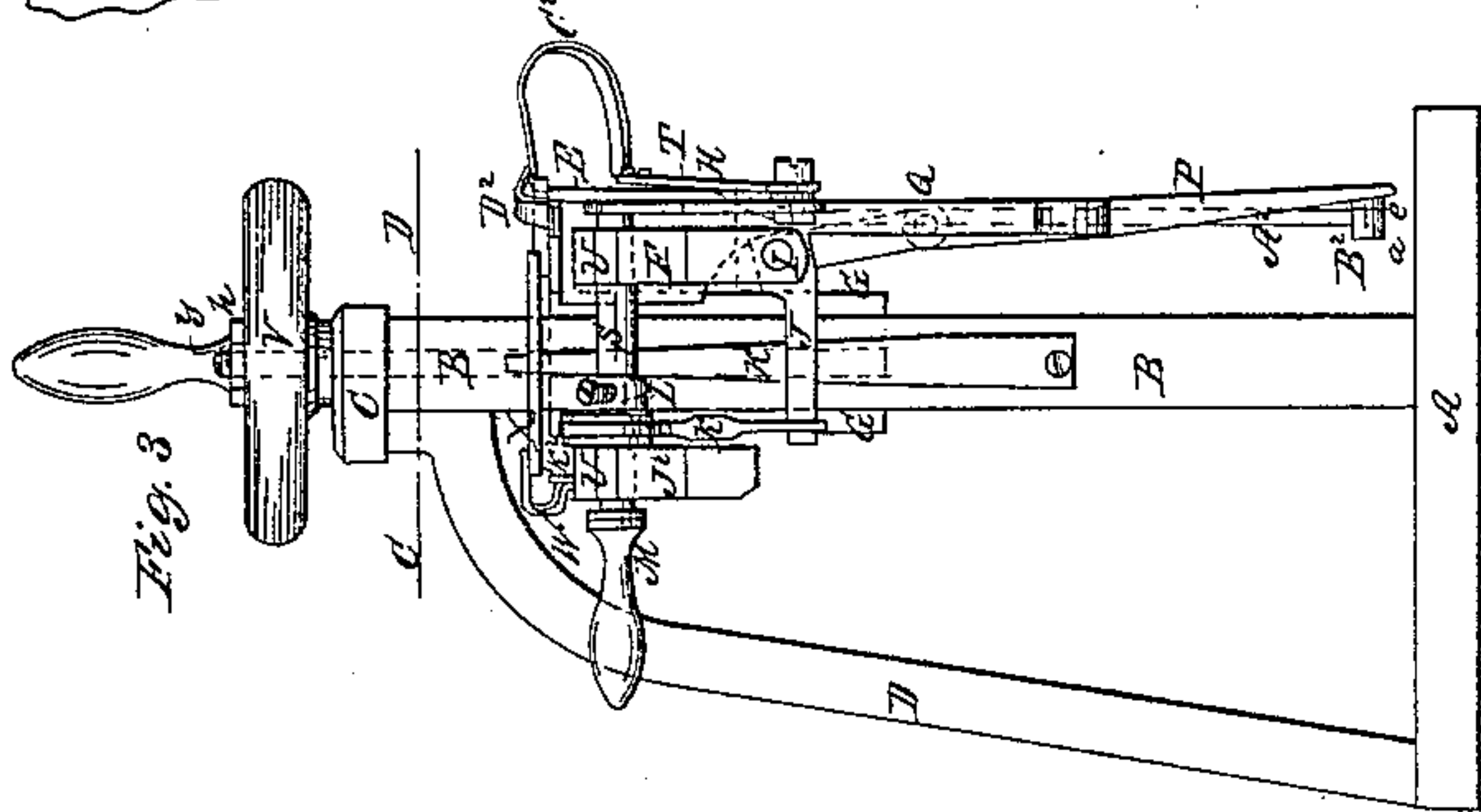
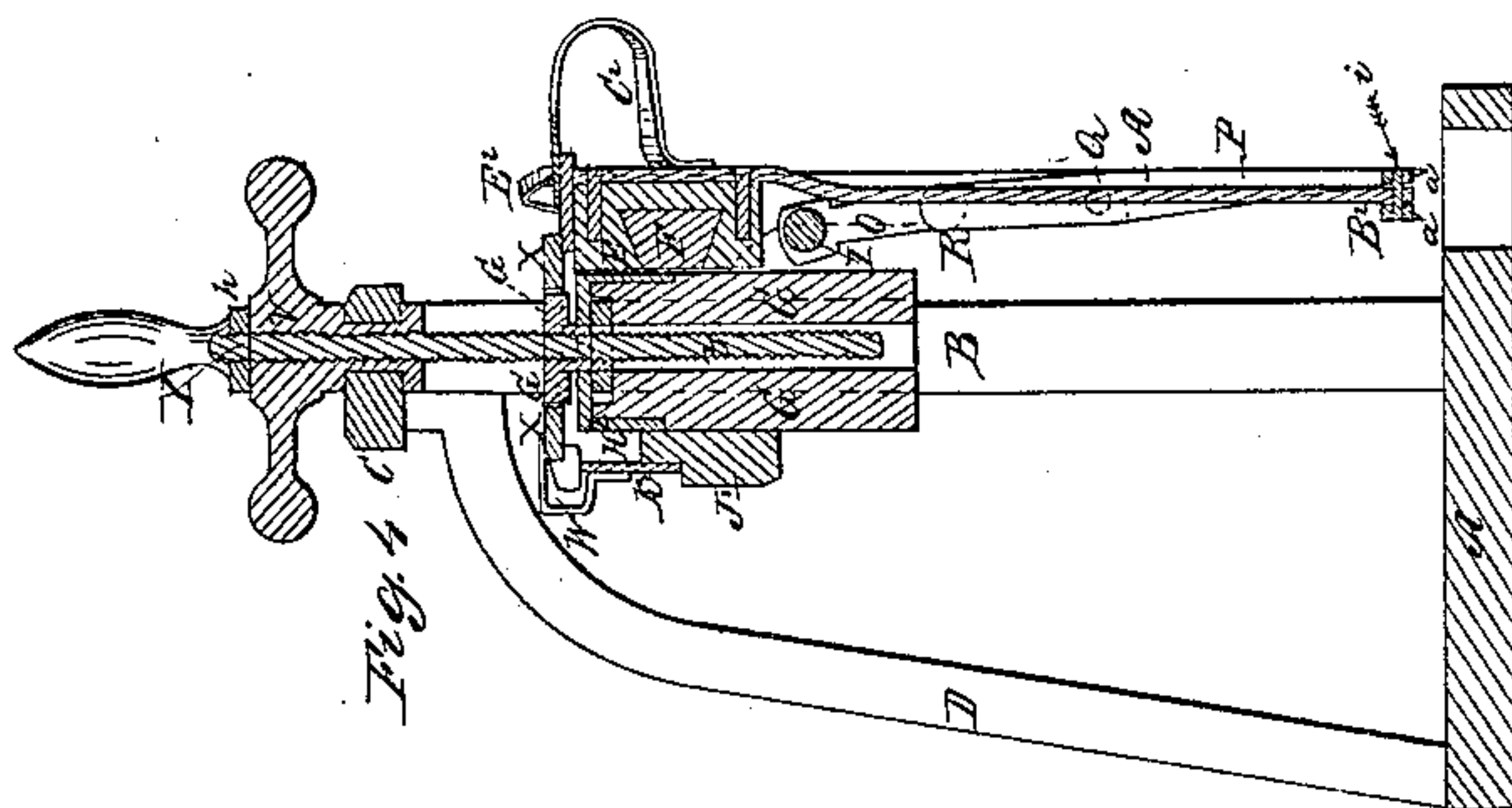
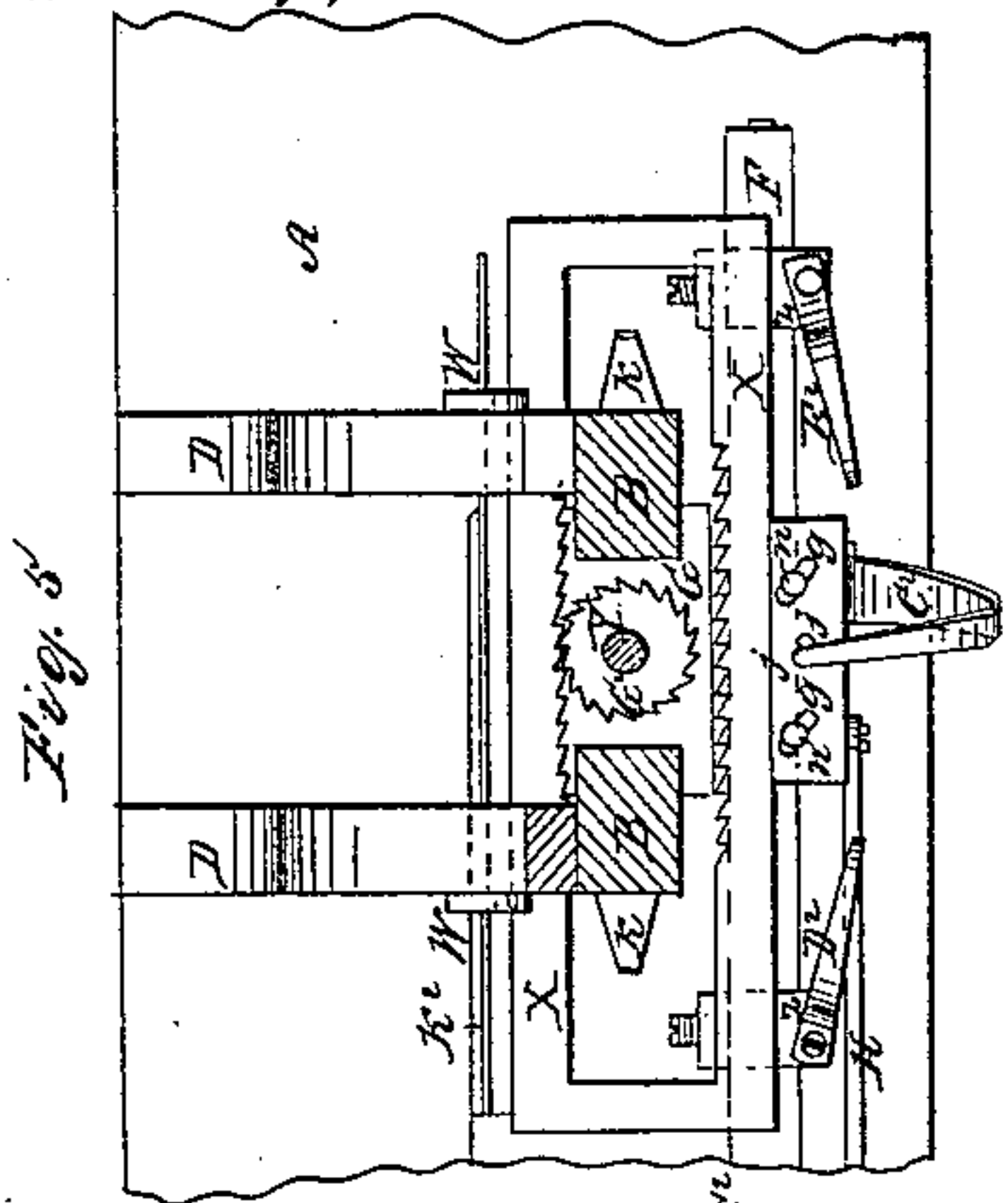


*W. Stoddard,*  
*Mortising Machine.*

*No 14,071.*

*Patented Jan. 8, 1856.*



*Inventor;*  
*W. Stoddard*



# UNITED STATES PATENT OFFICE.

WILLIAM STODDARD, OF LOWELL, MASSACHUSETTS.

## MORTISING-MACHINE.

Specification of Letters Patent No. 14,071, dated January 8, 1856.

*To all whom it may concern:*

Be it known that I, WILLIAM STODDARD, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a novel and useful Improvement in Mortising-Machines; and I hereby declare that the following specification, in connection with the accompanying drawings and references thereon, constitute a lucid, clear, and exact description and illustration of the construction and operation of the same.

In referring to the said drawings, Figure 1, denotes a plan or top view. Fig. 2, a front elevation of the same; Fig. 3, an end view of it; Fig. 4, a transverse and vertical section on line A, B, Figs. 1 and 2. Fig. 5 is a part plan of my machine with the top portion of it removed at the red line C, D, Figs. 2 and 3.

*Invention.*—The nature of my invention consists of the following described improvements in machines for mortising wood without the use of any chisel or chisels whatever, forming or cutting the ends of the mortise by spurs moved transversely, while a reciprocating spur cutter, hinged at its lower part, operates to cut and remove the wood from between the spurs which are cutting the head of the mortise as will be hereafter seen.

*Construction.*—To enable persons skilled in the art to which my invention appertains, to construct and carry out the same, I will describe it as follows: I construct a base of wood or other material as seen at A, A, in the several figures of the drawing. To this base A I attach two upright posts seen at B, B, which are surmounted by the cap seen at C. To the backside of each of the posts B, B I attach a brace seen at D, D. At G can be seen the vertical sliding carriage, to which is firmly attached the stationary longitudinal way F on which the slide E for carrying the arm A<sup>2</sup> and cutter B<sup>2</sup>, is vibrated by the connecting rod H, shaft S, and cranks T, and M which are designed to be operated by hand, by turning the crank M. To the way F, I fit two movable and adjustable stands seen at Z, Z, on which the spur cutters P, P, swing transversely to form each head, or end of the mortise at the same time, while the reciprocating cutter B<sup>2</sup> is vibrated so as to cut and remove the wood from between the spurs P, P,

nearly as fast as they cut off the wood at each head of the mortise.

The spurs P, P, swing or are vibrated transversely on the centers Q, Q, which are fixed to the lower end of the movable and adjustable stands Z, Z, so as to be easily moved and adjusted to any desired distance apart in order to give the desired length to the mortise. The vibration of the spurs P, P, is effected by the arm O, O, which are fitted so as to slide on the square shaft I, and be vibrated by this rocking shaft by means of the connections or points of bearing R, R. The shaft I, is suspended in the stands N, N, which are secured firmly to the way F, and is operated or rocked to vibrate the spurs P, P, by the eccentric L, which is fixed to the driving shaft S, and the rod K which is connected to the lever J, this lever being fitted to the rocking shaft I, as seen in the drawing.

It will be readily understood that the vibrating movement of the spur cutter B<sup>2</sup> will have to vary according to the distance between the spurs P, P, there not being quite as much movement of the spur cutter B<sup>2</sup>, as the distance between the spurs P, P. The necessary variation is effected by the slotted crank T by which the connecting rod H can be so set as to impart any desired length of stroke to the cutter B<sup>2</sup> to remove the wood from the mortise which is being formed.

The spur cutter B<sup>2</sup> is constructed of steel as seen at B<sup>2</sup> in the drawing, with four spurs on its lower part seen at a, a, a, a, which cut off the wood of the sides of the mortise, while the cutting edges e, e, of the cutter B<sup>2</sup> act in concert with the spurs a, a, a, a, to remove the wood from the mortise, after it is spurred or cut off at the sides and ends of the mortise by the transverse moving spurs P, P, and the longitudinal sliding spurs a, a, a, a, on the cutter B<sup>2</sup>. This cutter is so made, as seen in the drawing, that it will swing or tip on the pin i, Fig. 2, so as to remove the wood from the mortise which is being formed, when this spur cutter is moved in both directions one of the edges e, e, drawing or catching down into and removing the wood when the cutter B<sup>2</sup> moves in one direction, and the other edge e, drawing or catching down so as to remove the wood when the cutter B<sup>2</sup> moves in an opposite



direction and so on, as will be readily seen, the cutter  $B^2$  being stopped from tipping so far down, by the end of the slot through it coming against either edge of the arm  $A^2$  according as the machine is moving.

My improved cutter  $B^2$  is provided with four spurs seen at  $a, a, a, a$ , on each lower corner, which constitutes an important improvement, over a simple reciprocating cutter, and another improvement consists in making the under side of the cutter  $B^2$  concave so that it will more readily catch the wood where the cutter's motion is reversed. The spurs  $a, a, a, a$ , effectually straighten and finish the mortise lengthwise, if the wood be gnarly or cross grained, and in addition these spurs  $a, a$ , &c., finish or plane the sides of the mortise, thereby making finished work which is necessary where tenons are to be glued into the mortise, or where any nice strong work is required; in fact spurs as seen at  $a, a, a, a$ , must be used if green timber is being mortised with success.

To the backside of the carriage  $G$  I attach a bar seen at  $J^2$ , on the end of which one of the boxes  $U, U$ , is placed to receive the driving shaft  $S$ . The other box  $V$  which sustains the opposite end of the shaft  $S$ , is fastened to the way  $F$  as seen in the drawing.

To the cap  $C$  I fit the hub of a wheel seen at  $V$  through which the screw  $Y$  passes, and is secured to the wheel  $V$  by the nut  $h$ . This screw is fitted so as to turn in the ratchet nut  $G^2$ , this nut being fitted to the carriage  $G$  by means of the stand  $H^2$ , see Fig. 4. The wheel  $V$  is for the purpose of raising the carriage  $G$  and parts connected therewith, up so as to remove the spurs from the mortise, after it has been by them formed, which will be readily seen and understood.

The ratchet nut  $G^2$  is so made and arranged that the double inverted ratchet rack  $X$  will be vibrated by the slide  $E$ , to which it is affixed, in such manner by the angular slots  $g, g$ , and screws  $n, n$ , which pass through them, that this rack  $X$  will slide sidewise in conjunction with the swinging way  $K^2$  so as the teeth of the rack  $X$  will clutch with the teeth of the ratchet  $G^2$ , when the rack  $X$  is slid one way, and so that it will slide so as to clutch with the rack  $X$  when it is slid the opposite way so as to impart a continuous motion to the screw  $Y$  to feed the spurs  $P, P$ , and spur cutter  $B^2$  downward so as to form the mortise which will be readily seen.

The ratchet rack  $X$  is firmly held in its position after it has been moved from one extreme, by the projection on the under side of the end of the spring stand  $C^2$  dropping

or being pressed into one of the holes  $j, j$ , in the rack  $X$  and remaining and holding it until the rack arrives nearly at its extreme movement when the end of the stand  $D^2$  comes in contact with the under side of the spring stand  $C^2$  and raises it out of one of the holes  $j$ , when the ratchet rack is slid so as to clutch with the opposite side of the ratchet nut  $G^2$  and allow the projection on the spring stand  $C^2$  to press down into the other hole  $j$ , in the rack  $X$  and firmly hold it until it moves nearly to its other extreme, when the end of the stand  $E^2$  comes in contact with the lower side of the spring stand  $C^2$  so as to raise it out of the hole  $j$ , and so on until the mortise is completed. The stands  $W, W$ , hold down the ratchet rack  $X$  upon the swinging way  $K^2$  so as to cause it to operate correctly, which will be readily understood.

The springs  $l, l$ , operate to impart a ready change of the rack  $X$  from one side of the ratchet nut to the other substantially as seen in the drawings.

Operation: All that is necessary to do to operate my improved mortising machine, is to adjust the stand  $Z, Z$ , carrying the spurs  $P, P$ , so as to form the mortise the desired length; then so set the connecting rod  $H$  by the slot in the crank  $T$ , that it will cause the cutter  $B^2$  to travel back and forth nearly the distance between the spurs  $P, P$ ; then seize the crank  $M$  and revolve it with the hand while sitting or standing upon the bed  $A$ , which turning of the crank  $M$  puts the whole machine in motion, which if continued will form the mortise the required depth, after which the spurs  $P, P$ , and cutter  $B^2$  can be withdrawn by turning the wheel  $V$  and screw  $Y$  to which it is fastened, in the right direction essentially as set forth.

What I claim as my improvement and invention and desire to secure by Letters Patent is—

1. The movable cutting spurs  $P, P$ , or their mechanical equivalents for forming or cutting the heads or ends of the mortise, and without the machine being confined to the timber being mortised, essentially in the manner and for the purposes set forth.

2. I claim the double inverted feed rack  $X$  in combination with the ratchet nut  $G^2$  which is fixed to this screw  $Y$ , or their mechanical equivalents so this screw can be moved by the rack  $X$  and ratchet nut  $G^2$  to feed down the spurs  $P, P$ , and  $a, a, a, a$ , and reciprocating cutter  $B^2$  so as to form the mortise in the wood essentially in the manner and for the purposes set forth.

WILLIAM STODDARD.

Witnesses:

LOREN P. WINSLOW,  
E. W. SCOTT.