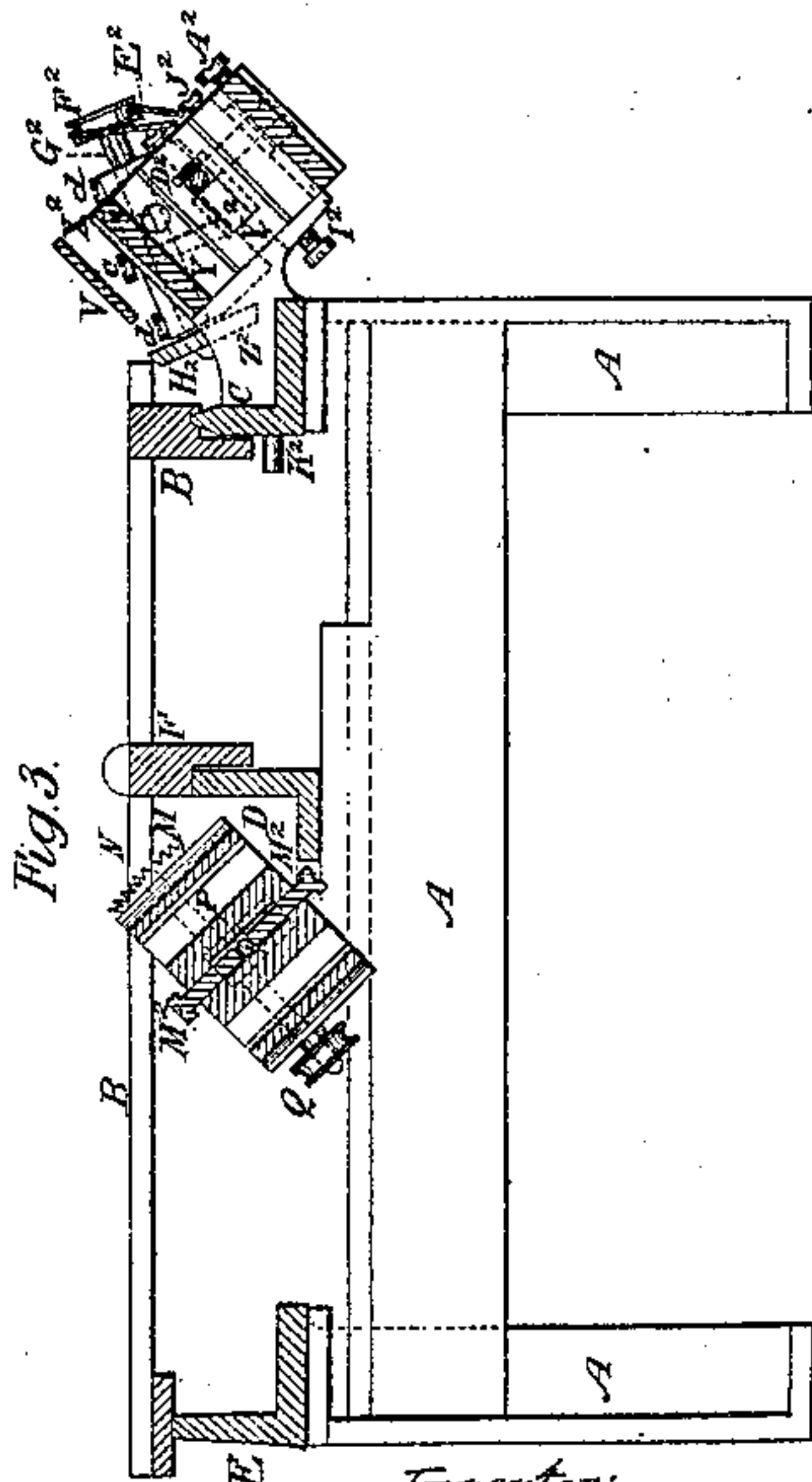
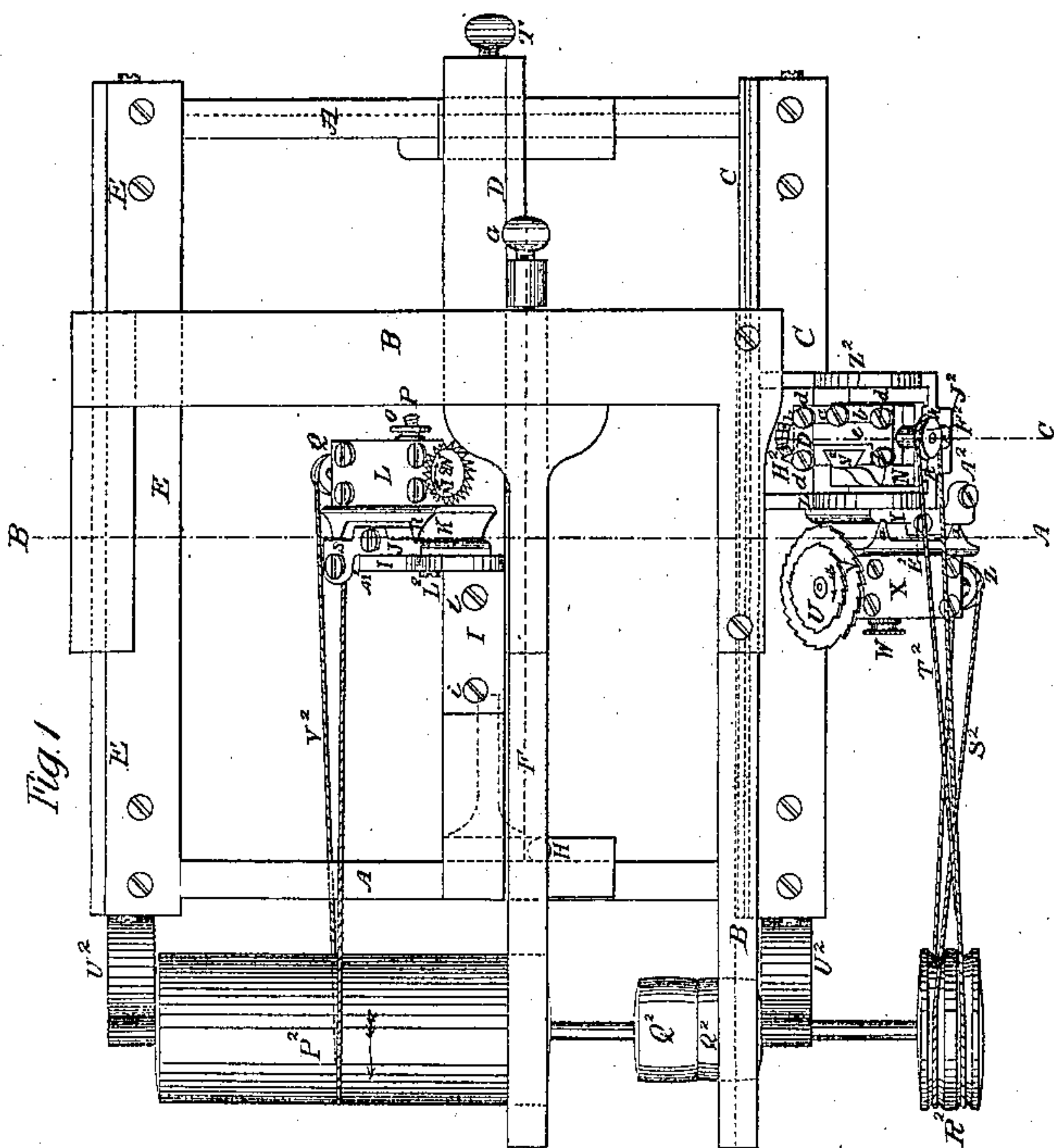
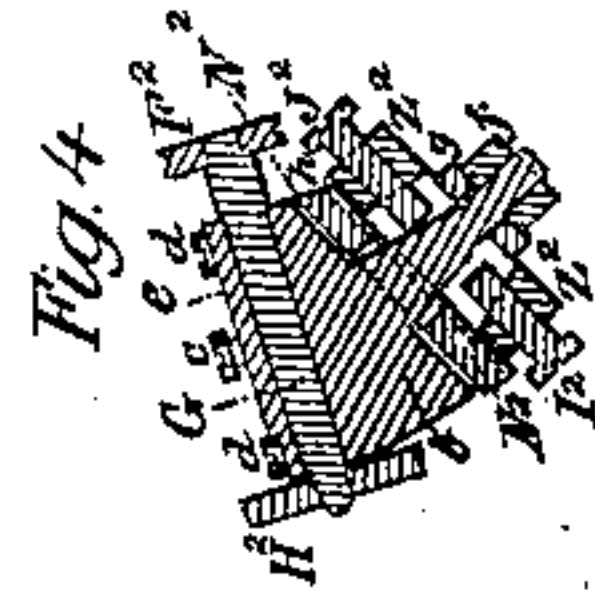
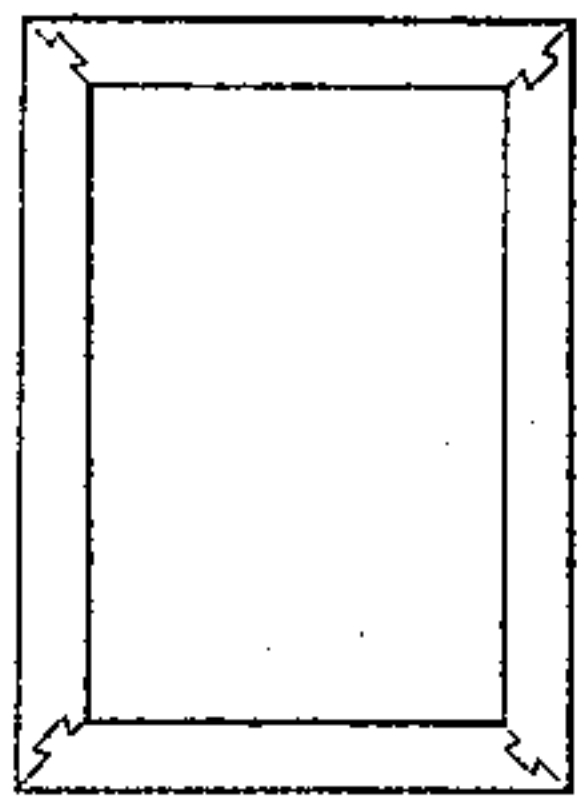
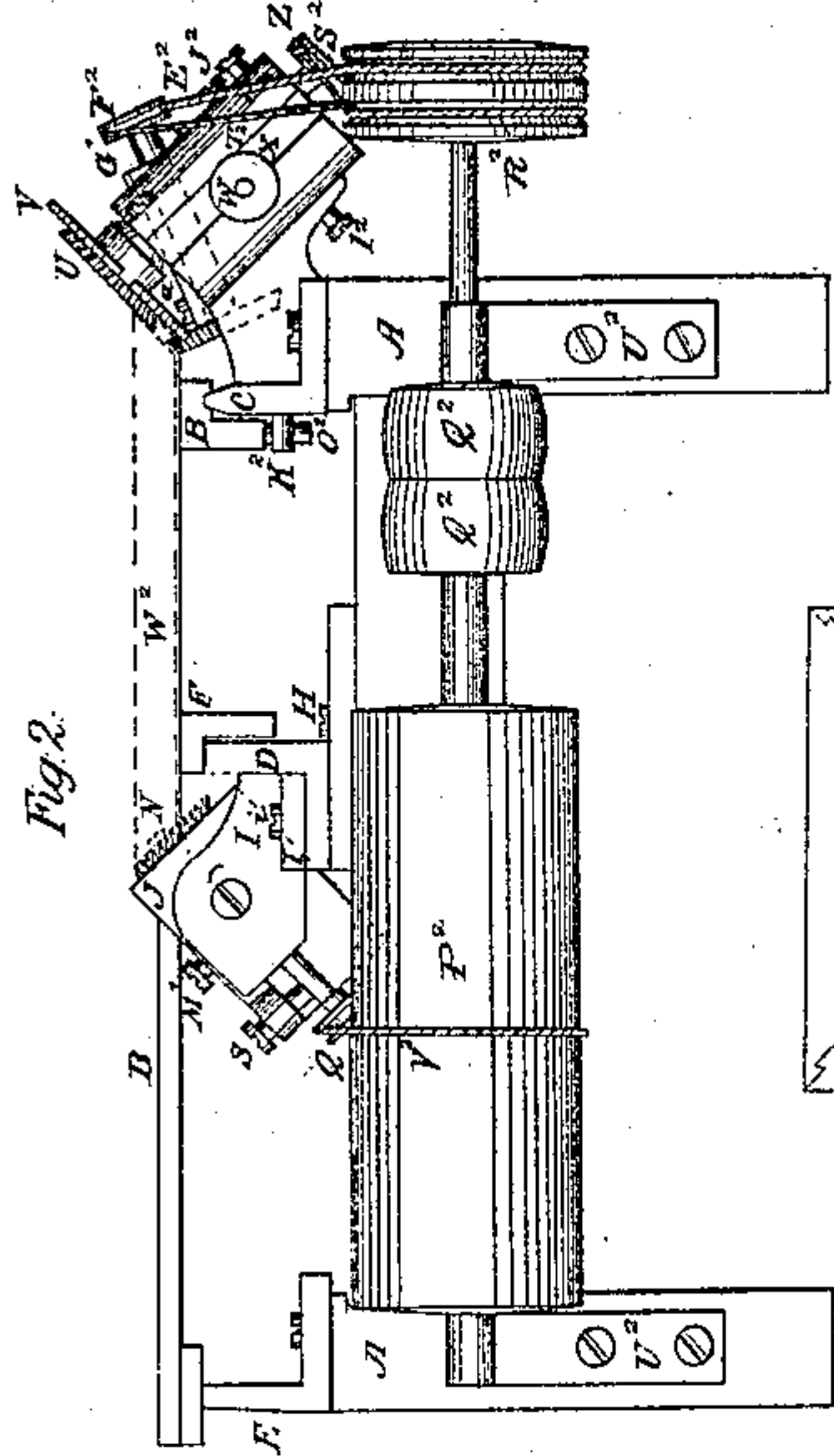


*A. & A. Davis,*  
*Doretailing Machine*

*N<sup>o</sup> 14,307.*

*Patented Feb. 26, 1856.*



*Inventor:*  
*Asahel Davis*



# UNITED STATES PATENT OFFICE.

ARI DAVIS AND ASAHIEL DAVIS, OF LOWELL, MASSACHUSETTS.

## DOVETAILING-MACHINE.

Specification of Letters Patent No. 14,307, dated February 26, 1856.

*To all whom it may concern:*

Be it known that we, ARI DAVIS and ASAHIEL DAVIS, both of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a novel and useful Miter Dovetailing-Machine; and we hereby declare that the following specification, in connection with the accompanying drawings and references thereon, constitute a lucid, clear, and exact description of the construction and use of the same.

In referring to the drawings, Figure 1 denotes a plan or top view, Fig. 2, an end elevation of the same. Fig. 3, is a transverse and vertical section on line A, B, Fig. 1. Fig. 4 is a transverse, central, and vertical section on line C, D, through the cutter head *b*. Fig. 5 is a view of the joints of a box when put together, after being formed on our machine.

*Invention.*—The nature of our invention consists of the miter dovetailing machine hereafter described, which is so constructed that it may cut the bevels on both ends of the piece to be dovetailed, and form the groove and tongue therein, all at one operation; also, in being made so as to be adjusted to form any desired length of the pieces which are to be dovetailed by its operation, without any change of cutters used therein.

*Construction.*—To render the construction of our machine easily performed by persons of competent skill, we will describe it as follows, in connection with the drawings:

We construct an iron frame seen at A, A, to the top of this frame we secure two stationary tracks or ways seen at C, and E. To the frame A, is fitted the movable track or way seen at D, so that it can be slid backward and forward, and be secured in any desired position by means of the screw T, and groove in the side or end of the frame A, into which the screw T, projects, and fits when it is screwed up to hold the track D firmly in the desired position. To the top of the tracks C, E, and D we fit the carriage B after it has been properly constructed, of metal or other desired substance. To this carriage B is fitted the movable and adjustable slide seen at F, so that it may be slid to any desired position on the top of, and with the track D, and secured in such position by the screw G. The slide F, is intended to be moved to correspond with, and rest upon the track D. The carriage B and

its adjustable slide F is to receive, and carry the pieces of board which are to be dovetailed, they being held down by the hand of the operator while he is pushing the carriage B forward.

A stand or portion of the track C, is formed as seen at Z<sup>2</sup> for receiving the angular adjustable head seen at Y. This head swings on the screw seen at X<sup>2</sup> Fig. 3, the head Y being adjusted to exact nicety by turning the screw A<sup>2</sup>, which comes in contact with arm under it, which is fastened firmly to the stand Z<sup>2</sup>. A slot is formed in the head Y, as seen at Y<sup>2</sup> Fig. 3 to receive the head of the bolt D<sup>2</sup>, and admit it to slide up and down with the sliding head stock X, and be regulated as to its height by the screw E<sup>2</sup>.

The sliding head, which is properly constructed, as seen at X is fitted so as to slide in the swinging head Y by means of the tracks *a, a*, and is firmly held to it after being properly adjusted by the bolt D<sup>2</sup>, and nut W. To the sliding head X is fitted the shaft which carries the cutters U and V and the driving pulley seen at Z, around which the band S<sup>2</sup> passes from the pulley R<sup>2</sup> by which the cutters U and V are driven. It will be seen that the sliding head X is so set, and can be so adjusted that the cutter V which it carries, will bevel one end of the board as desired, while the cutter U, will cut or form the upper part of the dovetail, and the cutter H<sup>2</sup> on another shaft will form the under part of the dovetail in the wood W<sup>2</sup>, as will hereafter be seen. We construct another head seen at *b*, Fig. 4, and partly in each of the other figures. This head is supported by the projection Z<sup>2</sup>, and is so made as to slide in an outward angle on the ways seen at *h, h*, and to slide in an inward angle on the way seen at N<sup>2</sup>, it being held on the *h, h*, by the screws I<sup>2</sup>, J<sup>2</sup>, and nut *f*, this movement being governed by the screw *c*. The adjustability thus given by both movements answers to bring the cutter H<sup>2</sup> in such position as to form the lower part of the dovetail in an exact line with the upper part, which will be seen to be necessary to make a perfect joint.

The shaft G<sup>2</sup> which carries the cutter H<sup>2</sup> and pulley F<sup>2</sup> is properly fitted so as to freely revolve in the head *b*, and is driven by the band T<sup>2</sup> passing around the pulley F<sup>2</sup> from the driving pulley R<sup>2</sup>. We construct a stand seen at I, which is firmly secured to



the movable and adjustable track, or way D by the screws  $i, i$ .

To the stand I, we fit the swinging head J, which swings on the screw  $L^2$ , and can be  
5 adjusted to the desired angle by the screw S coming in contact with the projection  $M^2$  from the stand I. There must be a groove formed in the swinging head J, as seen at R. To this groove is fitted the angular mov-  
10 able and adjustable head carrying the cutters M and N, and pulley Q as seen at L, which can be slid up and down, to impart to it the proper adjustment so as to allow the cutters M, and N, to form the end of  
15 the wood  $W^2$  and the groove in the same so that it will receive the tongue of the adjoining piece and make a perfect joint at the same time the tongue is being formed on the opposite end of this piece  $W^2$ , as will readily  
20 be seen.

The shaft which carries the pulley Q, and cutter M, is made of steel and at its upper end is formed a cutter as seen at N, which by  
25 being revolved with great rapidity will form a perfect groove in the wood, while the cutter M by reason of its peculiar construction will cut the piece being dovetailed, of the right bevel on the end of it, so that it will perfectly join with another piece which has  
30 been before dovetailed on our machine; the cutter N can be made larger or smaller, to form the groove larger or smaller as desired. The pulley Q, and shaft carrying the cutters M and N are driven by the band  $V^2$   
35 passing around the pulley Q and the elongated driving pulley  $P^2$ , which is of sufficient length to allow the band  $V^2$  to be always around it when the head L is slid to either extreme scoped by the machine.

40 The pulleys  $P^2$ ,  $Q^2$  and  $R^2$  are all supported on the shaft which is suspended in the stands  $U^2$ ,  $U^2$ , at the end of the frame A, A. Thus it will be seen that no change of cutters will ever be needed, but they will al-  
45 ways remain the same, except that the head

carrying the cutters M, and N can be slid back or forward to impart any desired length to the piece being dovetailed, essentially as set forth.

*Operation.*—The operation of our ma- 50  
chine consists in applying a sufficient moving power to the tight pulley  $Q^2$  to revolve the several cutters two thousand revolutions per minute, more or less if desired, in the direction indicated by the arrows; then lay 55  
the board  $W^2$  upon the carriage B, and firmly hold it thereon by hand; then slide the carriage B along sufficient to carry the board being dovetailed, past the several cutters, of sufficient speed to allow the groove 60  
in one end, and tongue in the other end of the wood to be properly formed at one operation, as will readily be seen.

What we claim as our invention and desire to secure by Letters Patent, is— 65

1. The arrangement and operation of the cutter heads X,  $b$ , and L, one movable and adjustable with the bar D which carries it, and the other stationary so as to bevel, and form the groove in one end of the wood, and 70  
bevel and form the tongue to fit this groove on the opposite end of the wood, at one single operation, so as to complete the dovetailing of each piece, of any desired length without changing the cutters, essentially in 75  
the manner and for the purposes fully set forth.

2. We also claim the carriage B, or its mechanical equivalent, and its movable and adjustable slide F which carries the board 80  
being dovetailed, and which can be moved and adjusted, in conjunction with the bar, or way D and cutters thereon so as to give any desired length to the board, essentially in the manner and for the purposes set forth. 85

ARI DAVIS.

ASAHEL DAVIS.

Witnesses:

D. P. Dow,

E. W. Scott.