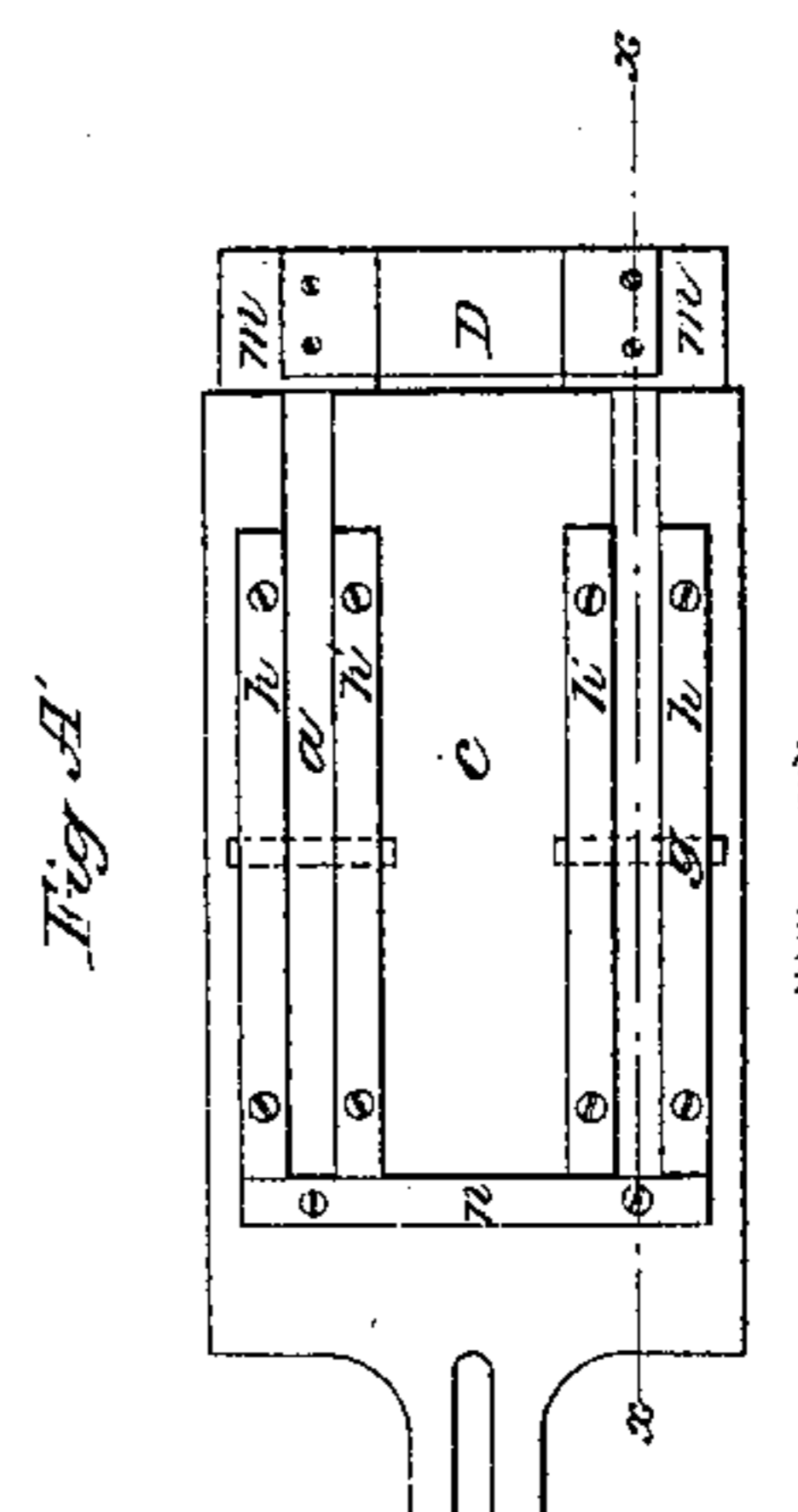
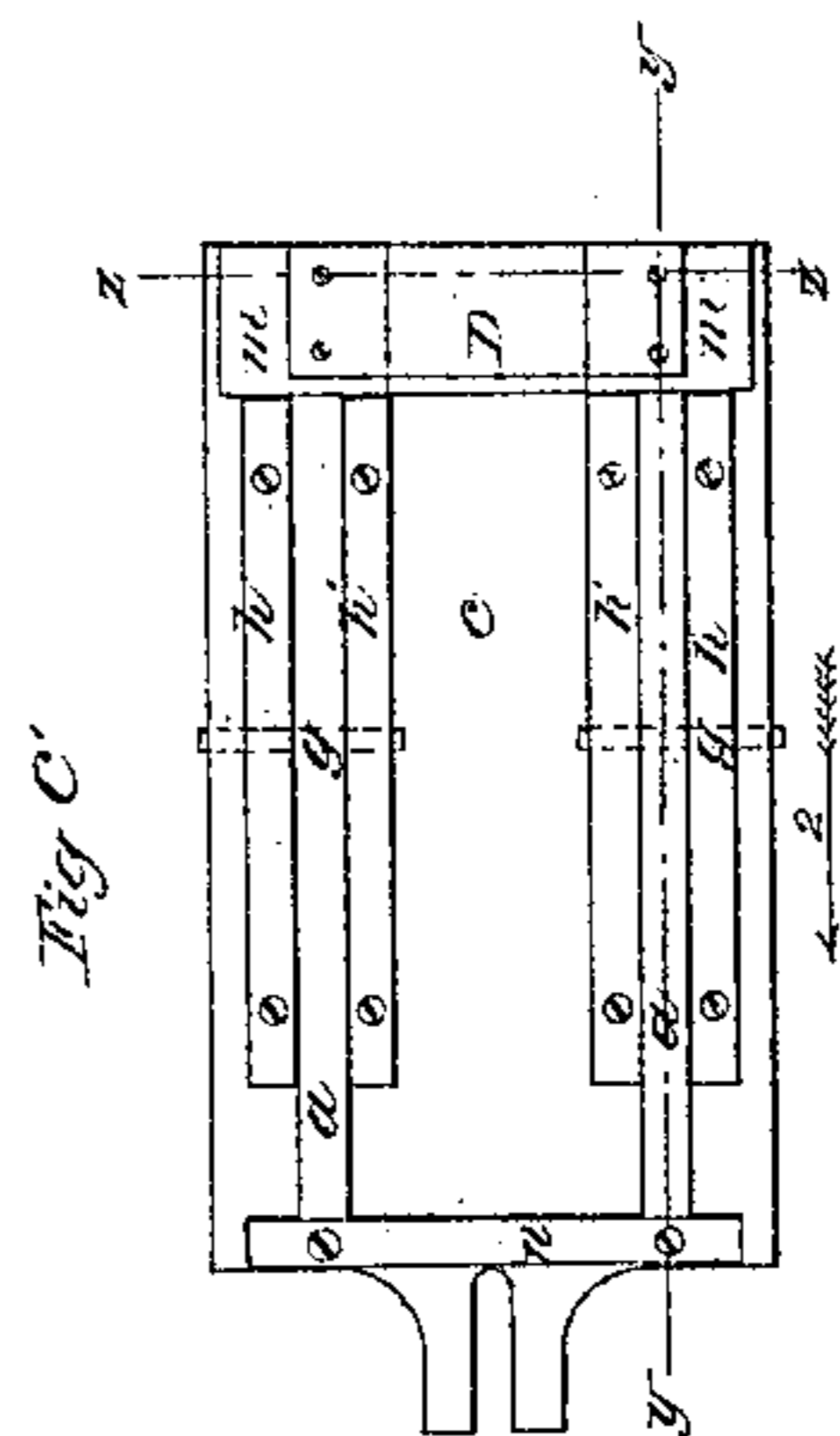
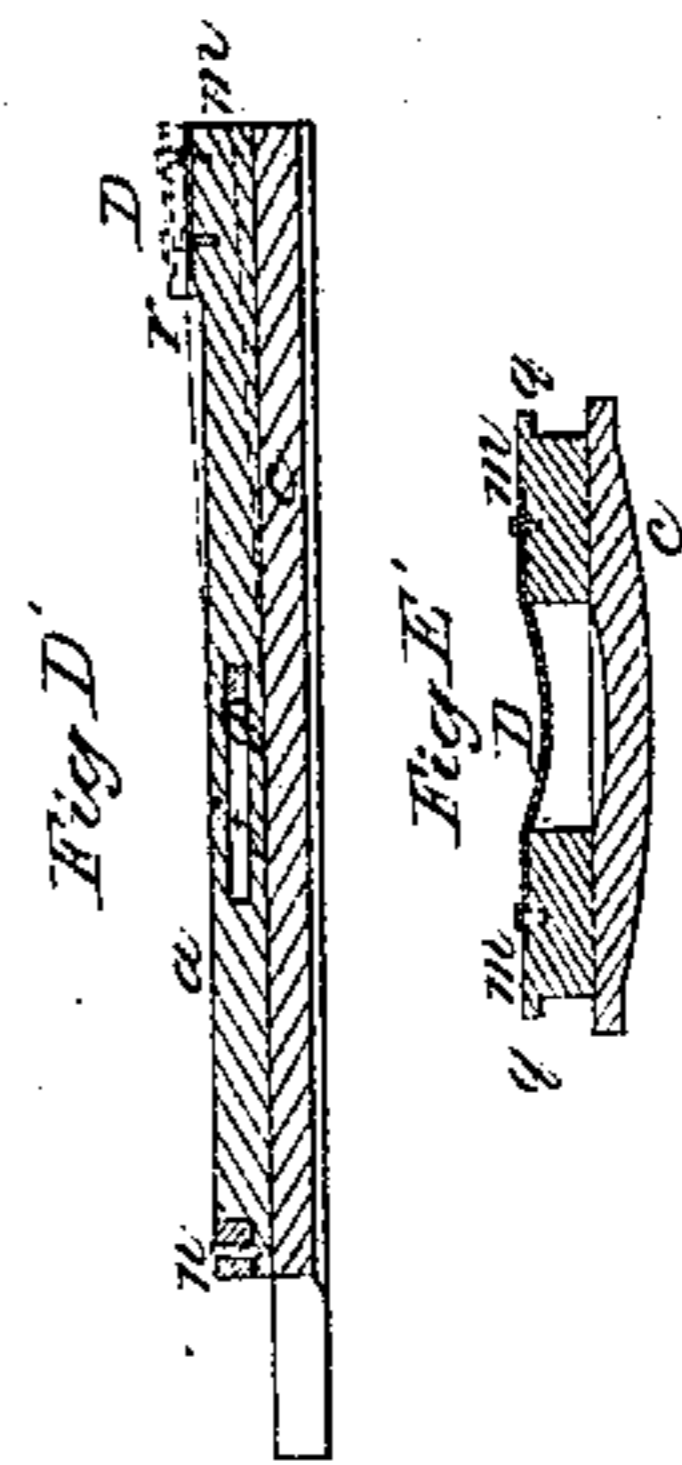
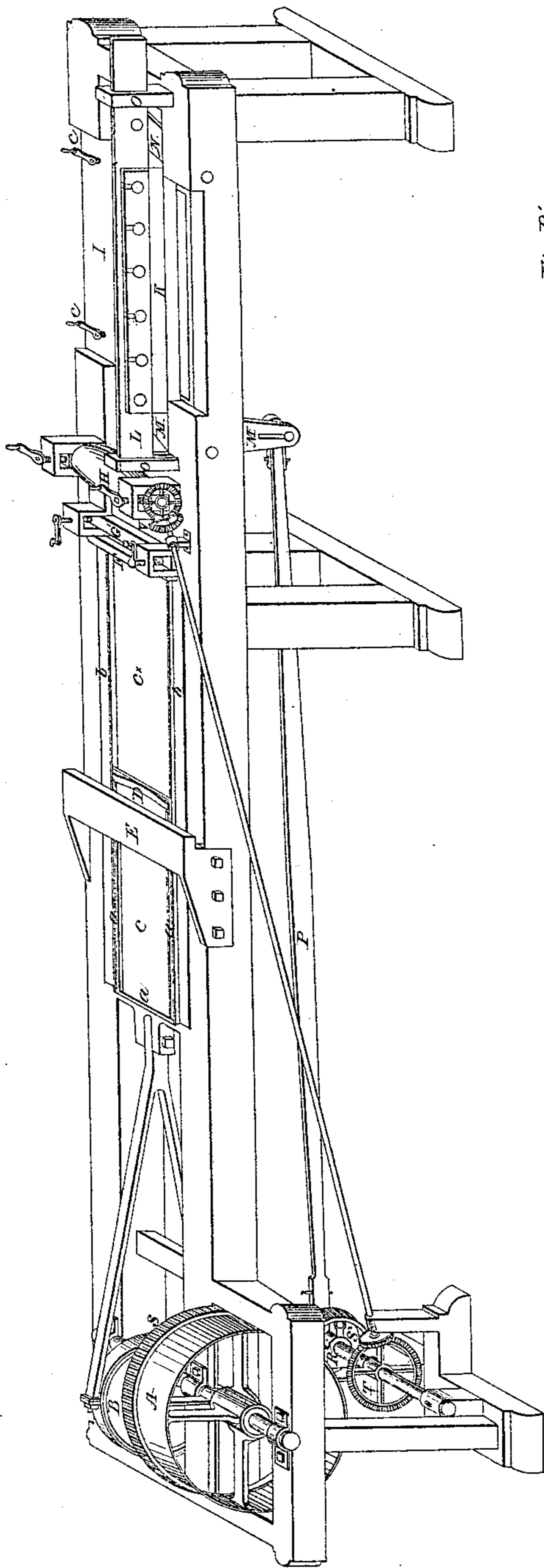
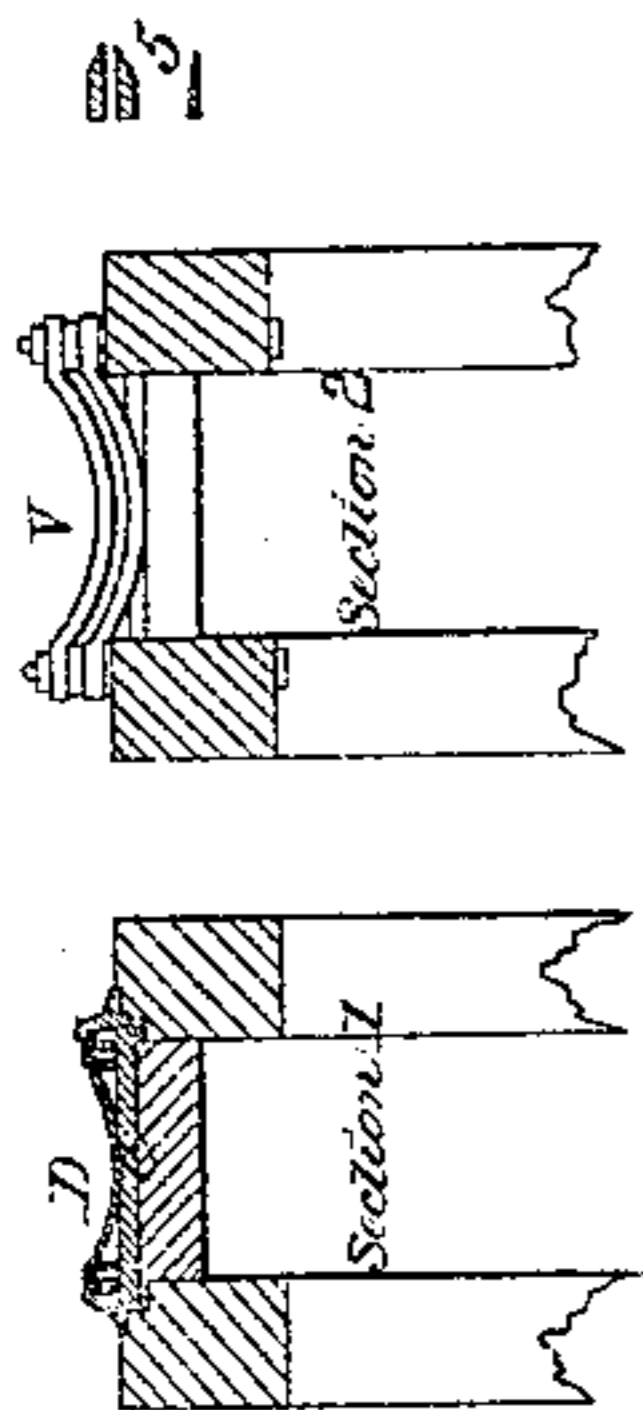
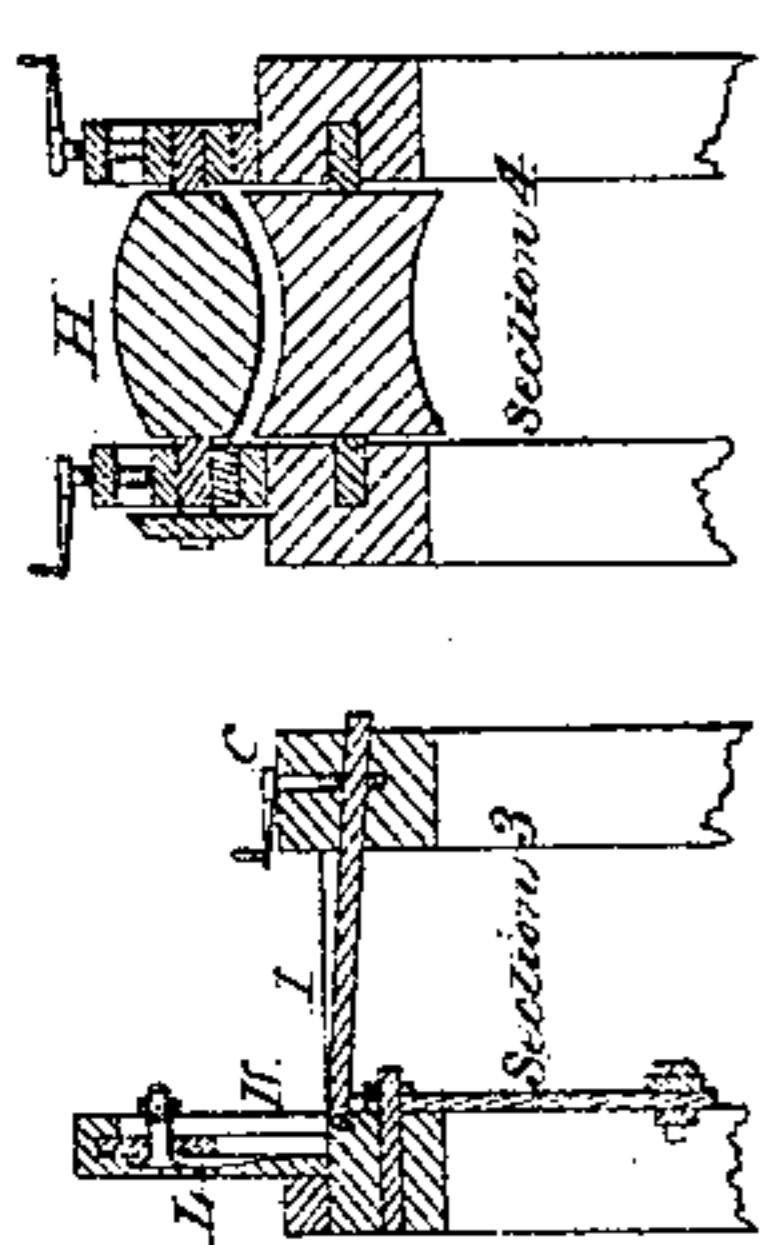


*W. Robinson,  
Making Stares,*

*No. 13,230,*

*Patented July 10, 1855.*



*Witnesses:*

*William P. H. H. H.  
H. L. Leonard*

*Inventor:*

*William Robinson*

# UNITED STATES PATENT OFFICE.

WILLIAM ROBINSON, OF AUGUSTA, GEORGIA.

## STAVE-MACHINE.

Specification of Letters Patent No. 13,230, dated July 10, 1855.

*To all whom it may concern:*

Be it known that I, WILLIAM ROBINSON, of Augusta, in the county of Richmond, in the State of Georgia, have invented a new and useful Machine for Splitting and Dressing Staves; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which the machine is represented in perspective view.

Section 1, is a transverse section at the knife for splitting; section 2, also a transverse section at the dressing knives; section 3, also a transverse section at the jointing knife; and section 4 a transverse section of the rollers which carry the staves when dressed on the sides to the knife for jointing the edges.

Figure A' is a plan of driver C when moving as indicated by the arrow. Fig. B' is a vertical section on line *x x* of Fig. A. Fig. C' is a plan of driver C with riving knife D shown in splitting position. Fig. D' is a vertical section on line *y y*, the red lines showing the action of spring bars during riving operation. Fig. E' is a vertical section on line *z z* of Fig. C.

Similar characters of reference in the several figures and sections denote the same part of the machine.

The invention here considered lies in the construction of the bars carrying the riving knife, and their combination with the upper portion of the driver.

It consists in giving these bars sufficient elasticity to cause them to act as springs when bound to the driver at any point, and in connecting the said bars to the driver by bolts passing through horizontal longitudinal slots in the bars, and through the guides between which the said bars work; so that the bars shall be immovable longitudinally during the riving operation, in consequence of their upward spring, and shall at the completion of said operation move the length of the slot, forcing the split stave upon the lower bed, and securing its extremity for the action of the driver; the details of construction and operation being as follows.

A, is a band wheel which is to be set in motion by a belt from any convenient motive power. The shaft of this wheel extends across the frame and carries the eccentric B, which communicates a reciprocating

movement to the plate C, and the splitting knife D attached to it by the bars *a, a, a*. This plate is made to move truly by the iron guides *b, b*. E, is an iron head block fastened to the frame so that the said plate marked C, and the splitting knife D may pass freely under it.

F, is another head block so fixed that the stave may pass freely under it to the spring bar G. Said spring bar is so placed in its guides as to admit of its rising vertically to such extent as to allow the staves to pass under it.

V, is the place for the dressing knives more clearly represented by section 2. These knives as well as the splitting knife are curved to suit the curve of the staves and their sections are shown at 5, adjacent to section 2.

H, is the uppermost of two rollers more fully represented by section 4. It is intended that these rollers shall be curved to suit the curve of the dressing knives. The upper roller is put in motion by a bevel wheel which receives its motion from the bevel wheel T on the shaft under the band wheel.

I, is a table on which the staves are delivered by the rollers H. The bed of this table is made so that it can be raised or let down by the crank screws *c, c*.

*o, o*, are guides to the bar L on which the jointing knife K, is fixed by screws. The bar L has a downward movement communicated to it by the bent lever M, and the movement is made alike at each end of said bar by the yoke N; the lever M is connected by the rod P, to the crank R and said crank as well as the bevel wheel T are made to revolve by the connection of the wheels S and S'.

In the drawing, the arms of the wheel S', and the hanger by which the shaft is attached to a leg of the frame, are omitted, so that the crank aforesaid could be seen. Under the edge of the jointing knife K, there is a recess made in the frame which said recess is filled with wood with the grain vertical, with a view to preserve the edge of said knife.

The riving knife D is secured by bolts, to the heads M M of the bars A A, which lie between the guides H H', and are connected with them by the bolts *g g*, passing through those guides, and the horizontal slots *f* in the bars. These bolts *g* are in practice countersunk in the guides to offer

no obstruction to the operation of the machine, though in the drawing they are shown as protruding.

The operation of the machine is as follows. The pulley or band wheel A is made to revolve by any convenient power, and when in motion the eccentric B revolves with it, thus a reciprocating movement of the plate C and knife D is produced. The bolt or piece of wood of which staves are to be made is placed between the head blocks E and F, and whenever the plate C is under said bolt, said bolt is dropped down to it, and the knife D which will then be under F, on being drawn toward E will enter at the end of the bolt and split off a stave, said stave will remain under the bolt after being split off but will fall upon the lower plate C<sup>x</sup> so as to be clear of it, the knife D sliding over the end of the stave to prevent it from springing up. As the return stroke of the plate C is made it will push the detached stave under the spring bar G, and to the rollers H which by their revolutions aided in part by the plate C, will force said stave between the dressing knives V, thus the staves will be split off the bolt and dressed on both sides at once. The movement of the rollers H being continuous will deliver the staves upon the table I. Here they are submitted by hand to the action of the knife K, which as it is continually moving up and down will cut off and joint the heretofore rough edges of the staves for the purposes of producing the swell or bilge in the barrel keg &c., if such is required, the knife K and bar L are to be made with the required curve in their length.

Such being the general operation of the machine, I will refer minutely to the action of the portion wherein my invention lies; namely, the bars *a a*. At the termination of the stroke in the direction of arrow 1 Fig. A', the knife D passes under the head block F and is at the same time elevated by the portions *g* of the heads *m* passing up inclined planes on the sides *b* of the frame of the machine. The knife D is then over the bed C as shown in Fig. C', the bars *a* being elevated somewhat as indicated by red lines in Fig. D pressing hard upon the bolts *g g* and forcing the opposite ends at the tie *n* down upon the driver. In this condition the return movement of the driver brings the knife D against the end of the bolt,

from which it splits a stave in its progress. As the knife D is beveled on its under side, so as to form in front an inverted inclined plane, the natural tendency of the knife is to run upward, so that when it once engages the bolt, the constant tendency is to increase the upward spring of the bars *a a*, and prevent any slipping of the bars over the bolts *g*. When the cut is nearly completed the upper portions *r* of the heads *m m* strike the face of the head block, E, causing the bars *a* to slide in the guides *h h'* the length of the slot *f*, their sudden downward spring as the cut is finished carrying the newly split stave to the bed C<sup>x</sup>, while the knife rests over it, in the position shown in Figs. A' and B'. This position continues during the driving stroke of the bed C until the heads *m m* pass up the inclines on frame *b*, releasing the stave and remaining stationary while the bed glides under the knife into the position of Fig. D' where we started the machine. This construction of the spring and horizontally slotted knife holders combined as here stated with the guides *h h'*, which from portions of the driver, imparts to the knife D functions of which the riving knives of other machines of this character are incapable.

I make no claim to the mere fastening of the riving knife to stationary springs as shown in Stoddard's shingle machine patented Dec. 7, 1852. Neither do I claim the vertically slotted movable knife bars shown in the patented shingle machine of Stevens and Kidder. But

What I do claim as new and of my own invention and desire to secure by Letters Patent is—

The horizontally slotted spring knife holders *a a* combined as specified with the guides *h h'* on the driver C, so as to prevent the longitudinal movement of said holders during the riving operation, and cause the knife at the completion of the cut to force the stave into the lower bed and there hold it during the return stroke of the driver as set forth.

In testimony whereof, I have hereunto signed my name before two subscribing witnesses.

WILLIAM ROBINSON.

Witnesses:

JOHN L. SMITH,  
JAS. D. CLARY.