

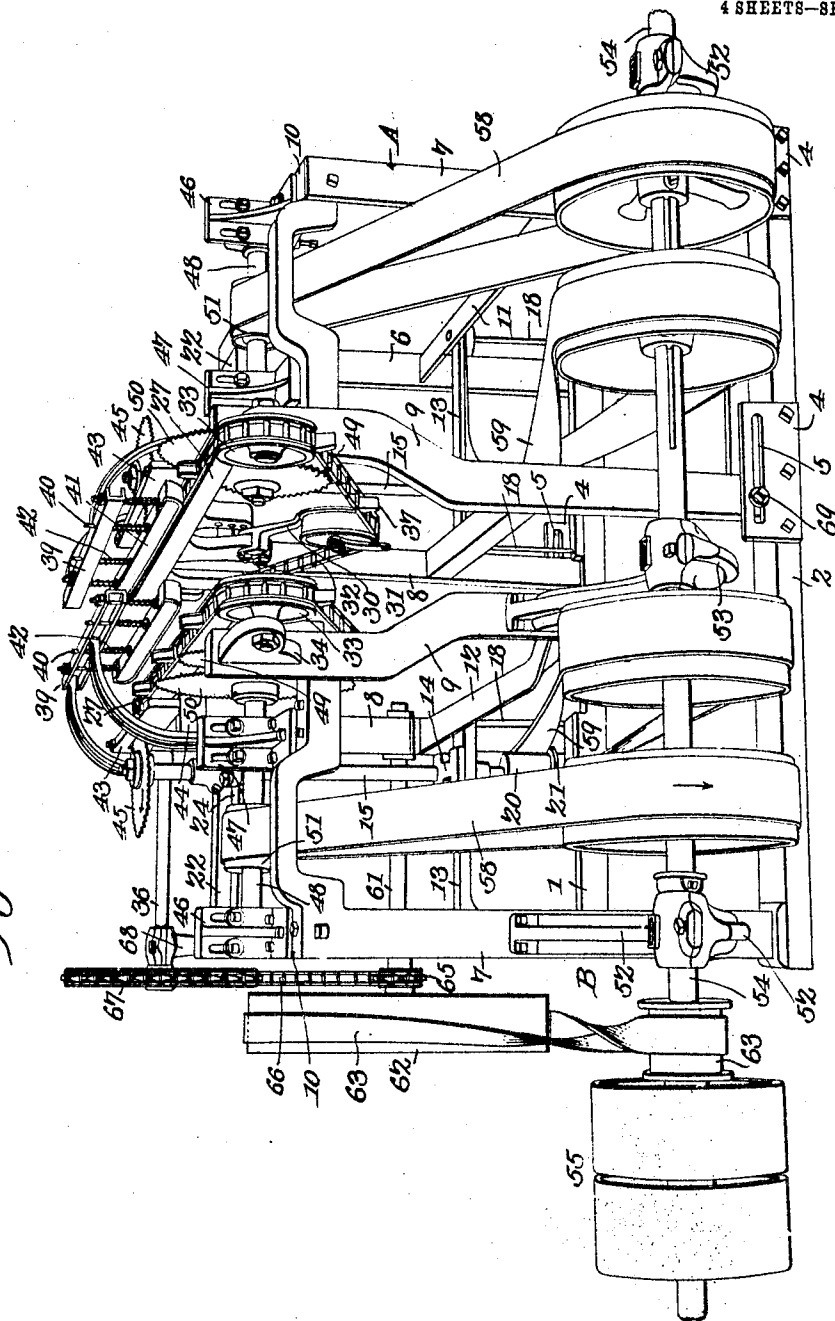
No. 851,302.

PATENTED APR. 23, 1907.

C. M. McCLUNE.
TENONING MACHINE.
APPLICATION FILED APR. 25, 1906.

4 SHEETS—SHEET 1.

Fig. 1.



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Cassius M. McClune, INVENTOR

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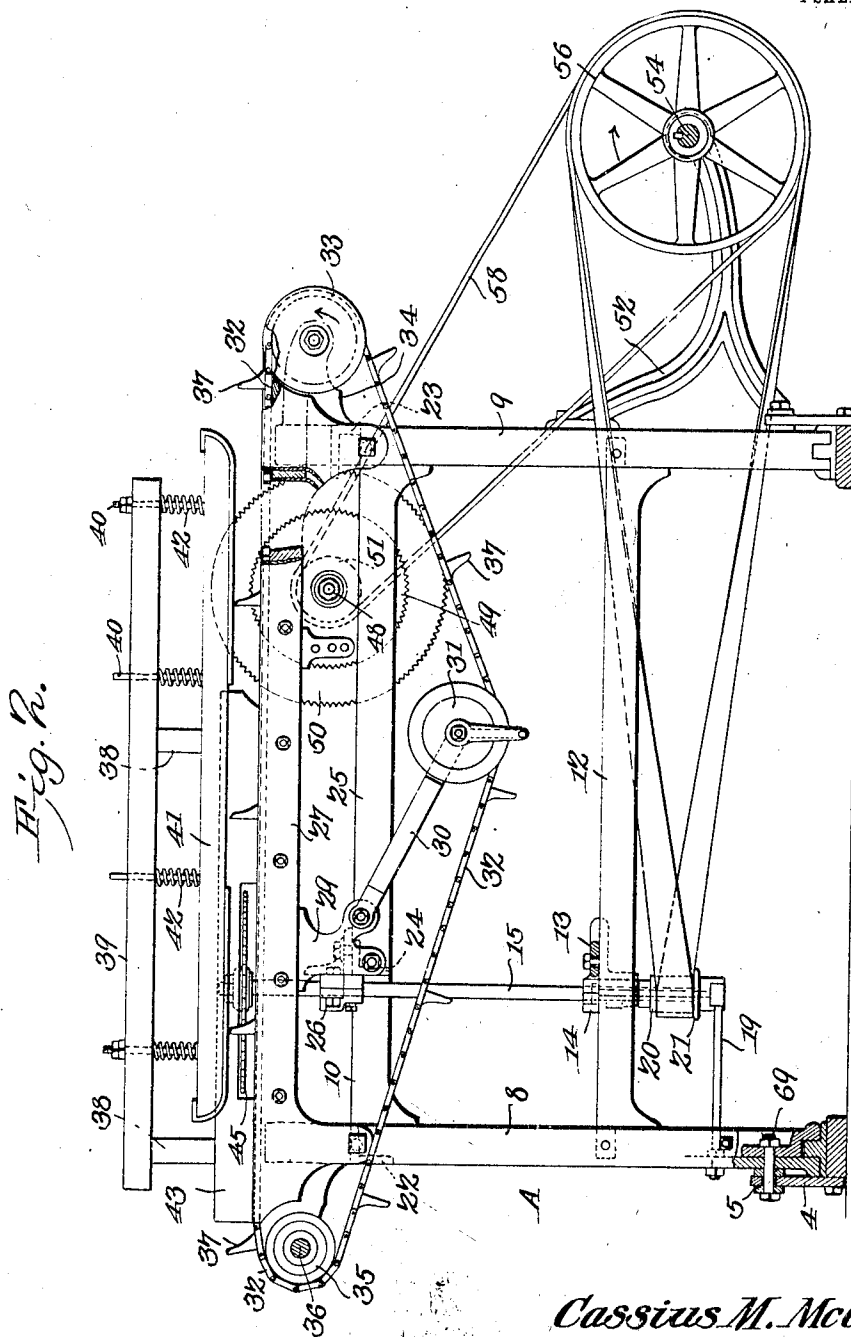
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4 SHEETS—SHEET 2.



WITNESSES:

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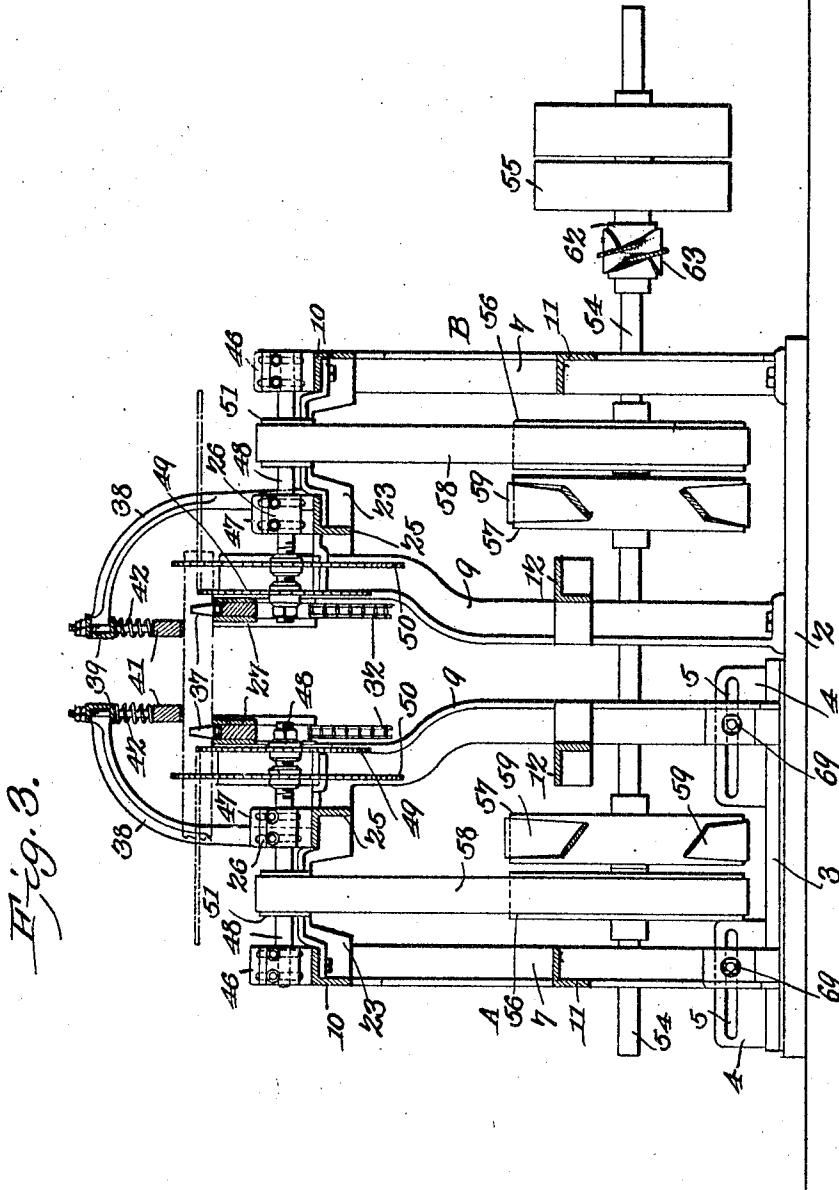
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4 SHEETS—SHEET 3.



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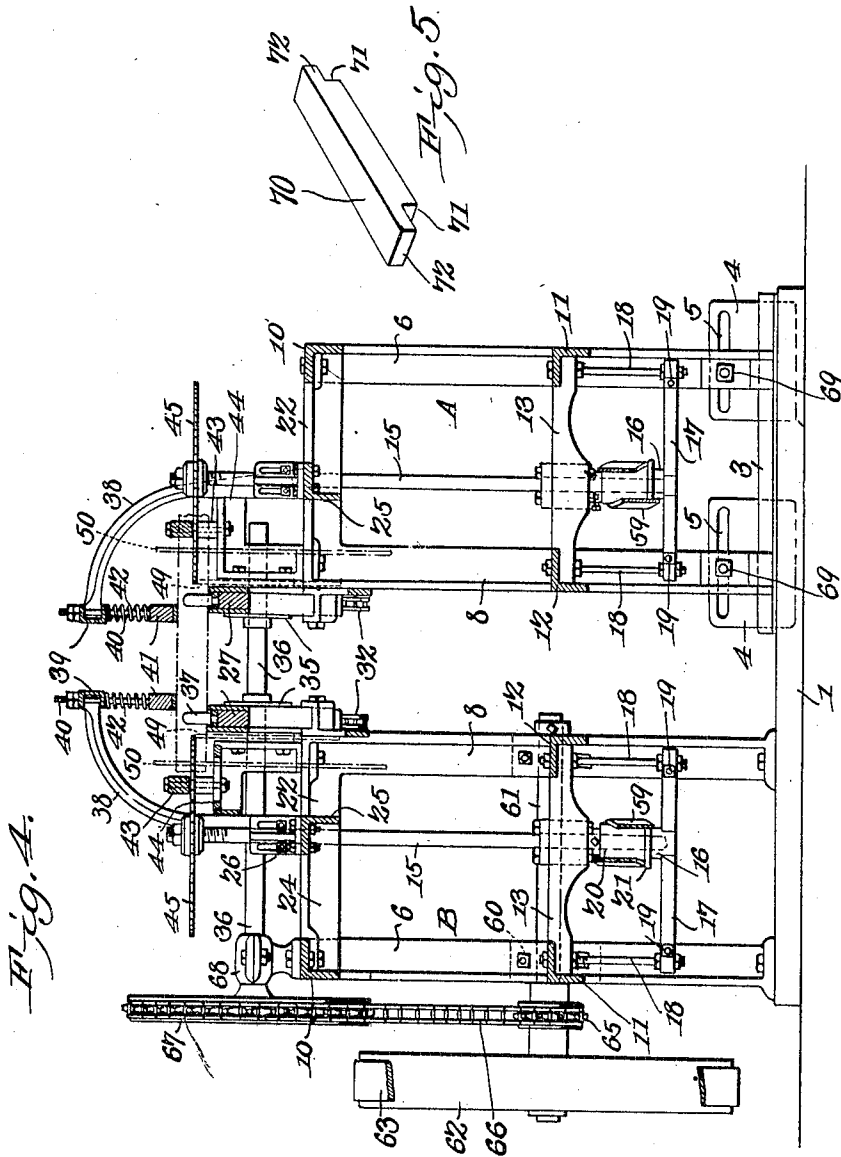
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4 SHEETS—SHEET 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

CASSIUS M. McCLUNE, OF OLEAN, NEW YORK, ASSIGNOR OF ONE-HALF TO
HENRY J. WILLIAMS, OF OLEAN, NEW YORK.

TENONING-MACHINE.

No. 851,302.

Specification of Letters Patent.

Patented April 23, 1907.

Application filed April 25, 1906. Serial No. 313,698.

To all whom it may concern:

Be it known that I, CASSIUS M. McCLUNE, a citizen of the United States, residing at Olean, in the county of Cattaraugus and State of New York, have invented a new and useful Tenoning-Machine, of which the following is a specification.

This invention relates to a tenoning machine and is particularly adapted for cutting tenons or tongues upon the ends of slats such as ordinarily used in the construction of crates of certain forms.

The object of the invention is to provide mechanism whereby slats of proper lengths can be readily cut off from long strips conveyed to the machine and whereby said slats in passing through the machine will be squared at their ends and formed with tenons of desired proportions.

With the above and other objects in view the invention consists of a frame on which are mounted parallel carriers having slat engaging devices projecting from them and which are adapted to pull slats between circular saws which are so arranged as to trim the ends of the slats and at the same time cut thereinto at different angles so as to produce tenons of desired proportions.

The invention also consists of novel mechanism for actuating the saws and carriers and also of means for resiliently pressing the slats upon the carriers during the cutting operations.

The invention also consists of certain other novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a perspective view looking toward the front of the machine; Fig. 2 is a side elevation of the machine a portion being broken away; Fig. 3 is a vertical transverse section looking toward the front of the machine; Fig. 4 is a section in the opposite direction; and Fig. 5 is a detail view of a slat produced by the machine.

Referring to the figures by characters of reference, 1 and 2 are front and rear base plates constituting the bed of the machine and each of these plates is provided for one half its length with a bead 3 arranged longitudinally thereon and extending upward from the outer faces of the plates and adjacent the

beads are guide plates 4 having slots 5 therein.

Mounted on the beads 3 is a frame A and another similar frame B is mounted on the plates at their other ends. These two frames are almost alike and each consists of side uprights 6 and 7 and inner uprights 8 and 9. A top rail 10 connects the upper ends of the uprights 6 and 7 and an intermediate rail 11 connects them between their ends. Another rail 12 connects the uprights 8 and 9 at a point between their ends and these two rails 11 and 12 are connected by a cross-bar 13 having a bearing 14 thereon in which is rotatably mounted a vertical shaft 15. The lower end of the shaft is mounted in a bearing 16 on a bar 17 which is suspended by means of rods 18 from the rails 11 and 12 and is braced by means of rods 19 connected to the uprights 6 and 8. A pulley 20 having an annular flange 21 at its lower end is keyed or otherwise secured to a shaft 15 between the bearings 14 and 16. A rear rail 22 connects the upper ends of the uprights 6 and 8 and an arched rail 23 connects the upper ends of the uprights 7 and 9. An arm 24 extends from the rail 10 parallel with rail 22 and is connected to said rail by an arm 25 which is disposed parallel with the rail 10. A bearing 26 is mounted on the arms 24 and 25 where they merge and the upper portion of the shaft 15 extends through this bearing.

The upright 9 has a longitudinally channeled bar 27 secured to one side thereof the other end of said bar being connected to the upright 8 in any preferred manner. This bar has an arm 29 hanging therefrom and to which is pivoted the forked end of a link 30 having a heavy idler 31 journaled at its end and bearing on an endless chain 32. This chain extends around a pulley 33 journaled in a bracket 34 extending forward from the frame and the chain also is engaged by a sprocket 35 located at the front end of the frame and secured to and rotatable with a shaft 36 journaled in bearings on the upright 8. The chain 32 has lugs 37 extending therefrom at desired intervals, the distance between them being sufficient to permit the insertion of a slat therebetween. That portion of the chain 32 between the sprocket 35 and the pulley 33 is adapted to fit and travel within the channeled bar 27, and secured to the rail 22 and arm 25 are curved arms 38

which overhang the channeled bar 27 and are united at their upper ends by a strip 39. A series of rods 40 are mounted within this strip 39 and are adapted to slide therein, all of the rods being fastened at their lower ends to a presser foot 41 which is disposed above the channeled bar 27 and extends for a greater portion of the length thereof. The ends of this presser foot are rounded so that the foot will easily ride upon any objects inserted thereunder and coiled springs 42 embrace the rods 40 and bear at their ends against strip 39 and foot 41 so as to hold the foot normally pressed downward as far as it will go. A guard strip 43 is disposed longitudinally upon the frame and between the channeled bar 27 and shaft 15 and is supported in any suitable manner as by means of cross strips 44 which connect the lower portions of arms 38 with the bar 27. This strip 43 extends over a circular saw 45 which is secured to and rotates with shaft 15. Adjustable bearings 46 and 47 are arranged on the rail 10 and arm 25 respectively and mounted within them is a shaft 48 having a circular saw 49 at one end which rests close to the channeled bar 27 and projects a slight distance thereabove. Another circular saw 50 is secured to said shaft at a point removed a desired distance from the saw 49 and a pulley 51 is arranged on the shaft 48. A bracket 52 extends forward from the upright 7.

All of the foregoing description applies equally to the two frames A and B. The frame B, however, in addition to the arm 52 has another arm 53 and in the arms 52 of the two frames and arm 53 is journaled a drive shaft 54 carrying pulleys 55 adapted to receive power from any suitable source. Two pulleys 56 and 57 are keyed to the shaft 54 in front of each of the frames A and B and a belt 58 extends around the pulley 56 and the pulley 51 on shaft 48. A belt 59 is arranged on pulley 57 and is partly twisted so as to extend around the flanged pulley 20 on shaft 15. Ears 60 extend forward from the uprights 6 and 8 of the frame B and constitute bearings for a shaft 61 having a large pulley 62 at one end on which is arranged a belt 63 which is crossed and extends around a small pulley 64 on the drive shaft 54. Shaft 61 has a sprocket 65 thereon which drives a chain 66 extending around a large sprocket 67 secured to one end of the shaft 36 which is journaled in a bearing 68 as well as in the bearings 34 hereinbefore referred to. The uprights 6, 7, 8 and 9 of the frame A are adjustably secured to the slotted plates 64 by means of clamping bolts 69 and all of the parts on the frame A which are disposed on the shafts 36 and 54 are feathered on said shafts so that the frame A can be adjusted toward or away from the frame B in order to adapt the machine for cutting slats of different lengths. It is of course understood

that the frame B is fixedly connected to plates 1 and 2.

In using the machine the shaft 54 is driven in the direction of the arrows indicated thereon and rotary motion will be transmitted to the endless chains 32 through the belt 63 and pulley 62 to the chain 66 which rotates the shaft 36 and the sprockets 35 thereon. The lugs 37 projecting from the chain will thus be moved in unison from the front to the rear ends of the channeled bars 27. The saws 45 will be rotated in the directions of the arrows by the belts 59 and the two saws 49 and 50 on each shaft 48 will be rotated in the directions of the arrows thereon by the belts 58. A long strip of wood is placed by the operator across the teeth of the chains 32 where they enter the channels in strips 27 and the adjoining lugs on the chain will come up against the strip and pull it forward under the presser feet 41 and thence into contact with the saws 49 and 50. Saws 50 will cut off a slat 70 from the strip and the small saws 49 will at the same time cut into a slat at a predetermined distance from the ends thereof to form shoulders 71. The slat will continue in its forward movement with the chains 32 and under the presser feet 41 until brought into contact with the horizontally arranged saws 45 which will cut longitudinally into the ends of the slat a sufficient distance to meet the incision cut by the saws 49 and therefore a tenon 72 will be produced which will be of the proportions desired. It is to be understood that one slat can be placed between every two lugs 37 on each chain and therefore several slats may be caused to travel through the machine simultaneously and so that they will be successively operated upon by the saws. By means of a machine such as herein described a large number of slats can be provided with tenons in a very short period and the cuts will be accurate and smooth. The presser feet 41 serve to prevent the slats from sliding or becoming displaced during the cutting operations and will automatically adjust themselves to slats of different thicknesses. By loosening the belts 59 the frame A can be slid from or toward the frame B in order that slats of desired lengths can be cut. The idlers 31 are sufficiently heavy to keep the chain 32 tight under all conditions.

The preferred form of the invention has been set forth in the foregoing description but I do not limit myself thereto as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages therein, and I therefore reserve the right to make such changes as fairly fall within the scope of the invention.

What is claimed is:

1. A machine of the character described comprising adjustably connected frames spaced apart, longitudinally channeled bars upon the adjoining portions of the frames, an

endless chain mounted to travel within each bar, outstanding lugs thereon, spring pressed presser feet supported above the space between the frames, alining horizontal shafts upon the frames, circular saws of different diameters upon each shaft and in planes parallel with the chains, a vertical shaft within each frame, a circular saw rotatable therewith, and in a horizontal plane, a drive shaft journaled upon the two frames, means for transmitting rotary motion therefrom to the horizontal shafts and vertical shafts respectively, and mechanism actuated by the shaft for simultaneously operating the chains to convey material against the saws and presser feet.

2. In a machine of the character described the combination with oppositely disposed frames adjustably connected; of longitudinally channeled parallel bars carried by the

frames, endless chains, movably mounted within the channeled bars, mechanism for actuating the chains, stock engaging device upon the chains, arms upstanding from the frames and extending over the chains, channeled strips connecting the arms on each frame, spring pressed rods slidably mounted within the strips, elongated presser feet connected to the rods and above and parallel with the channeled bars, and means carried by the frames for shaping the stock contacted by the presser feet.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses:

CASSIUS M. McCLUNE.

Witnesses:

G. W. McEWAM,
H. J. WILLIAMS.