

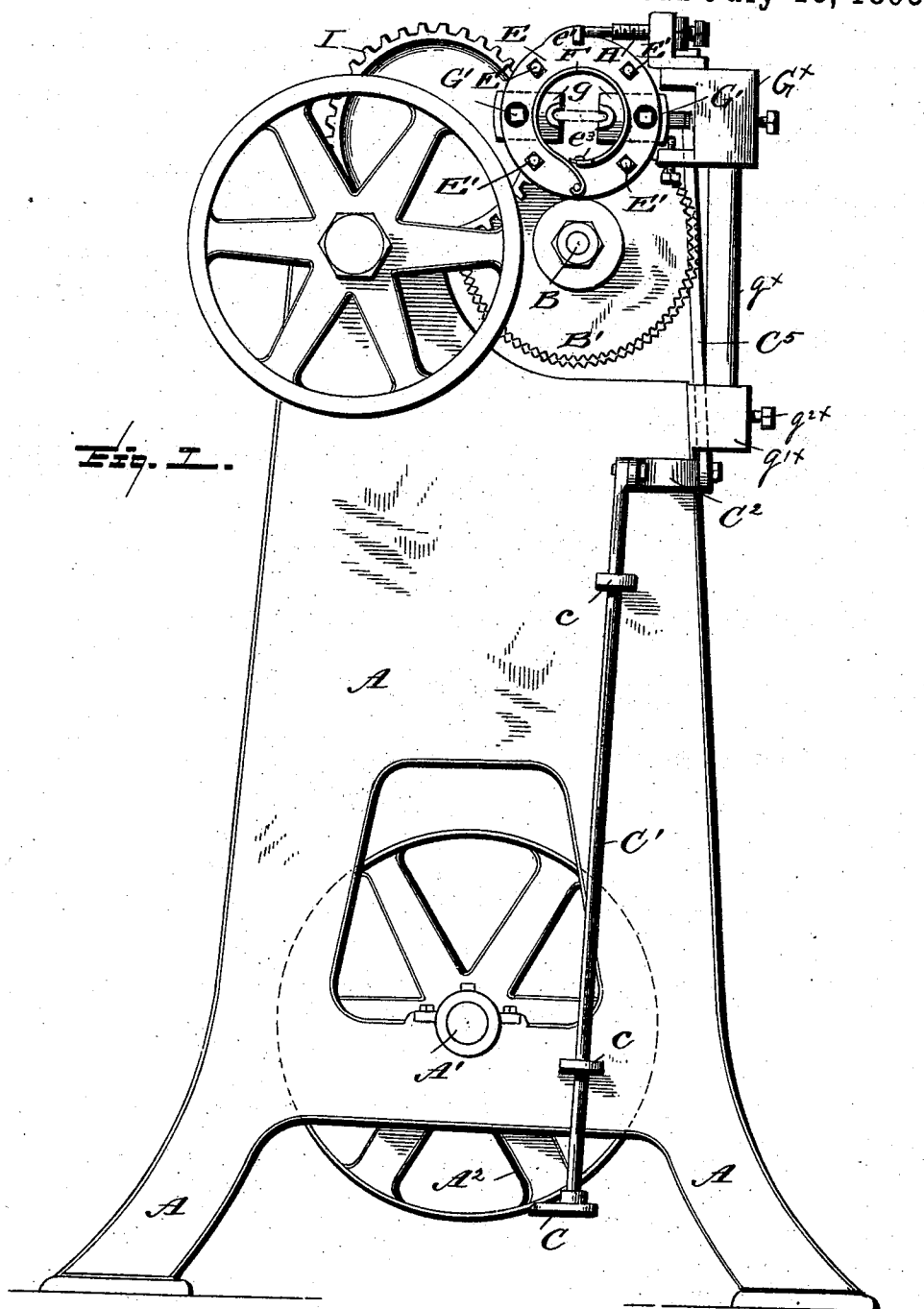
(No Model.)

4 Sheets—Sheet 1.

C. D. MARSH.
SLAT TENONING MACHINE.

No. 501,892.

Patented July 18, 1893.



Witnesses

L. C. Hills.
E. H. Bond.

Inventor

Calvin D. Marsh.
per *Chas. W. Fowler.*
Attorney

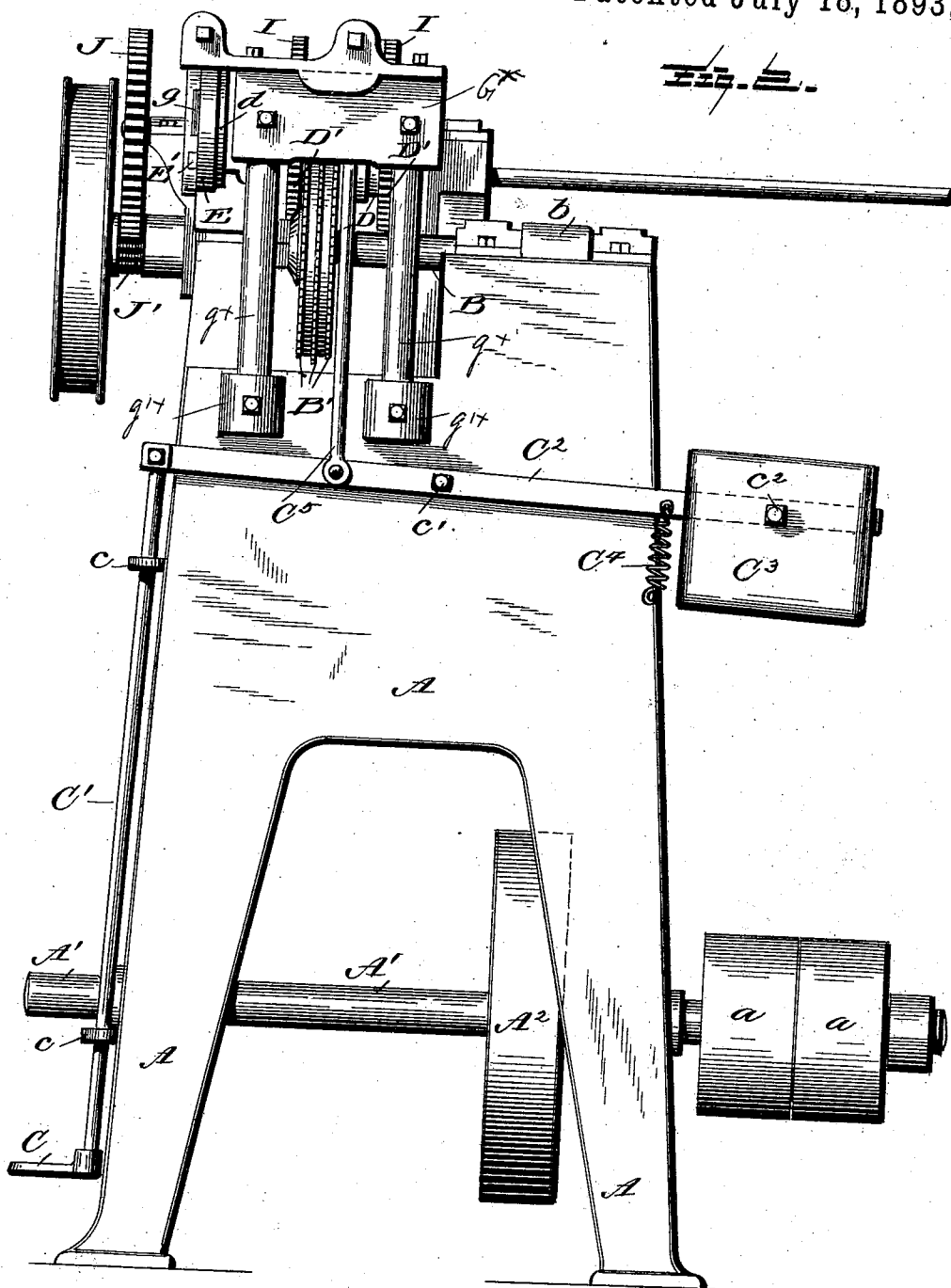
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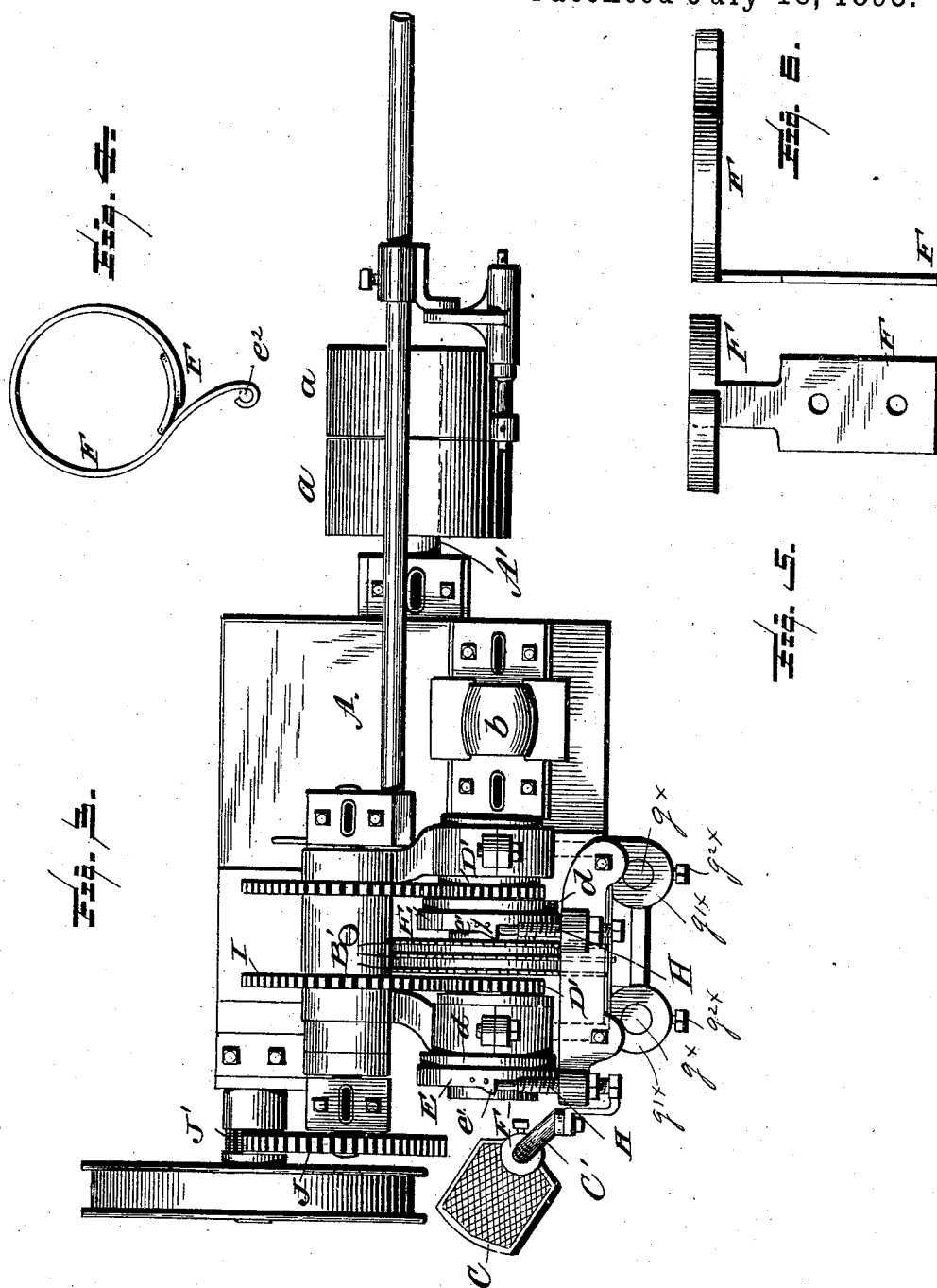
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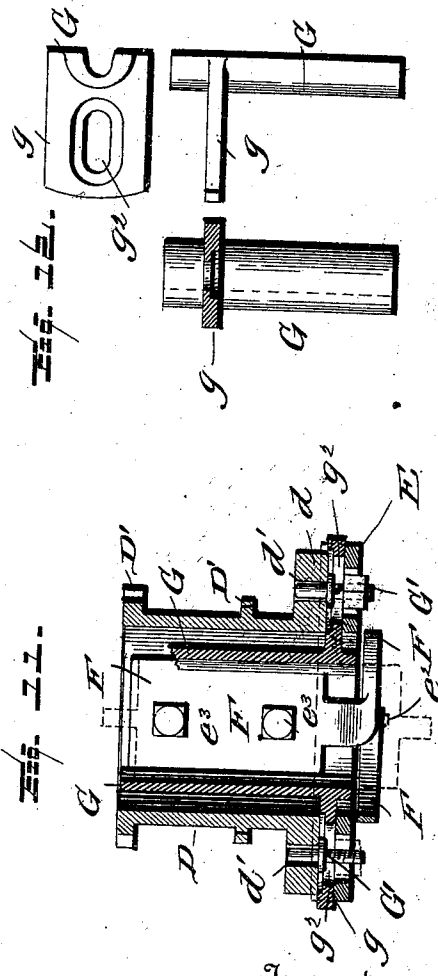
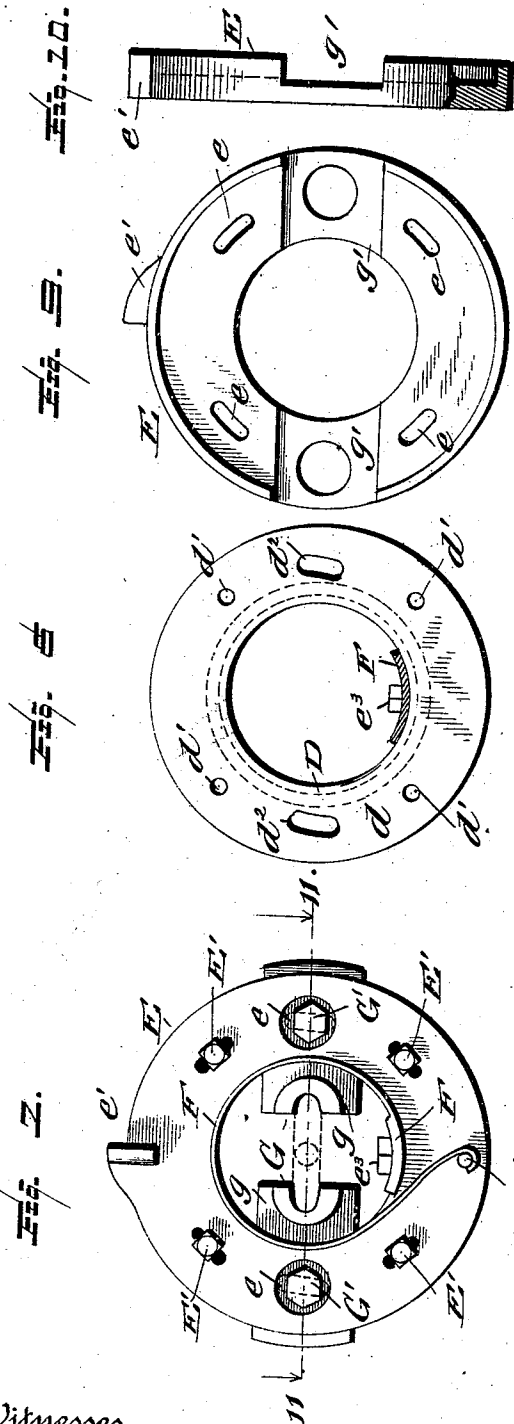
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UNITED STATES PATENT OFFICE.

CALVIN D. MARSH, OF WILLIAMSPORT, PENNSYLVANIA, ASSIGNOR TO THE
ROWLEY & HERMAN COMPANY, OF PENNSYLVANIA.

SLAT-TENONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 501,892, dated July 18, 1893.

Application filed October 10, 1892. Serial No. 448,416. (No model.)

To all whom it may concern:

Be it known that I, CALVIN D. MARSH, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Slat-Tenoning Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

This invention relates to certain new and useful improvements in slat tenoning machines, and it has for its objects among others to provide an improved device of this character which shall be simple and cheap yet efficient, and by the employment of which better results may be obtained and the slats produced at a less cost than by prior machines.

The machine is designed to saw off the slats into the proper lengths and at the same time cut tenons on the ends thereof. The act of cutting is done by a plurality of circular saws placed on one arbor and close together, the middle saw having preferably a little larger diameter than the others. The middle saw cuts the slat clear off and the outside saws cut away the wood leaving only the tenon. Of course, to accomplish this the slat must be caused to turn or revolve in front of the saws so as to cut the slat in from both edges and sides. In practice more than one saw is required on each side of the middle one as there must be sufficient width of saw cut to give the tenon proper length. The slat is fed in a long strip at right angles to the saws through what is termed a "head;" this "head" is of novel construction and in it resides the gist of the present invention. The head is a device to hold the slat and revolve it in the presence of the saws. It consists essentially of a hub-shape, that is, a hollow cylindrical piece having a gear wheel on its outer circumference, which intermeshes with another gear wheel driven in any suitable manner, as by a belt, causing it to revolve. The front portion of the hollow opening in the head is occupied by two jaws which extend by flat projections laterally through the head, allowing a sliding motion toward and from each other

at the will of the operator, by suitable connections, the jaws close, grasping the slat; the head then revolves, the tenons are cut and the completed slat severed from the strip. Then, at the will of the operator, the jaws open, the revolving motion ceases and the completed slat is pushed out and the strip advanced another length when the operation is repeated. There are two heads and they are carried by a hollow shaft so that the completed slat may be pushed on through and allowed to drop to the floor. The jaws are self-centering. They grasp the slat firmly while being cut and release it for the purpose of feeding. The heads can be readily adjusted to different sized slats. The jaws may be adjusted by means of collar bolts so that the tenon may be cut in the middle of the slat or on either side of the center of the slat to make an eccentric tenon and at the same time be self-centering as to the center of the tenon.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a front view of a machine embodying my improvements. Fig. 2 is a side view thereof. Fig. 3 is a top view of the same. Fig. 4 is a view of the spring removed from the head. Fig. 5 is a face view thereof. Fig. 6 is an edge view of Fig. 5. Fig. 7 is a front end view of the head. Fig. 8 is a view of the end of the head with the cap removed. Fig. 9 is a view of the reverse side of the cap detached. Fig. 10 is a section of the head shown in Fig. 9. Fig. 11 is a section on the line 11 of Fig. 7, looking in the direction of the arrows. Fig. 12 shows different views of the jaws detached.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the supporting frame of the machine of any suitable form of construction, and in suitable bearings on which is journaled the power shaft A' which

is designed to receive its motion from any suitable source of power, as by belt from any suitable source and passed around the pulleys *a*, see Fig. 2. On this shaft is a belt pulley *A*² from which, by belt, motion is conveyed to the saw arbor *B* which is provided with a belt pulley *b* as seen in Fig. 2 and which is suitably journaled near the upper end of the frame as shown. On this arbor are the circular saws *B'*, suitably spaced and the middle one being of slightly greater diameter than the others as shown in Fig. 2.

C is a treadle carried by the vertical rod *C'* which is guided in suitable guides *c* and the upper end of which is pivotally connected with the horizontal arm *C*² pivoted between its ends as at *c'* to the frame *A* and carrying at its other end a weight *C*³ which is adjustable thereon in any suitable manner as for instance by a set screw *c*² as seen in Fig. 2. A spring *C*⁴ is connected with this arm between its pivot and its weight and its other end is connected to the frame *A* as shown in Fig. 2. To this arm between its pivot and the end which is connected with the rod *C'* is pivotally connected the lower end of the vertical rod or arm *C*³ the object of which will soon be made apparent as well as the parts with which it is connected.

The head consists of a hollow cylindrical body portion *D* having at one end a gear wheel *D'* as seen in Fig. 11, and near the other end a flange *d* provided with bolt holes *d'* and the oppositely-disposed eccentric slots *d*². On the front end of the body piece of the head is placed a cap *E* which is held in position by the bolts *E'* engaging the holes *d'* in the flange of the head and passed through the elongated slots *e* in the cap piece; these slots are provided for the purpose of allowing the cap to turn or twist a little upon the head. On the edge of the cap is a projection or shoe *e'* as seen in Figs. 7 and 9.

F is a spiral spring the spiral portion of which is held at its end to the outer face of the cap by being bent around a pin *e*² as seen in Fig. 7 and its other end is bent at right angles and extended within the body portion of the head where it is secured in any suitable manner, as by the bolts *e*³ as seen in Fig. 11.

G are jaws fitted within the body portion of the head and oppositely disposed as shown best in Fig. 7; each jaw has a lateral portion *g* which is fitted to slide in ways *g'* in the inner face of the cap piece as shown in Figs. 9 and 10 and these lateral portions are provided with slots *g*² through which are passed the bolts *G'* which engage the eccentric slots in the flange of the body portion so that when the head is twisted or turned with relation to the cap or the cap twisted or turned with relation to the head, the two jaws are caused to open or close. The slots in the lateral portions of the jaws are to permit of adjustment to different sized slats. When properly adjusted by the collar bolts only a slight movement is required to fasten or release the slat.

The collar bolts *G'* of course are fastened to the jaws. It is necessary that the slat be held behind the saws as well as in front of the same and therefore two heads are employed, the one beyond the saws to hold the slat which is being completed and severed. The two heads are alike in construction and operation.

H are adjustable screws adjustably held in the frame of the machine in position to contact with the projections or shoes *e'* of the cap pieces of the heads as seen in Figs. 1 and 3. The heads are caused to revolve by reason of the gears thereof meshing with the gear wheels *I* which are revolved through the medium of the gears *J* and *J'* as seen best in Fig. 1 or in any other suitable manner.

The rod *C*⁵ is connected with the frame or carrier *G*^x of the heads so that when the operator removes his foot from the treadle the counterweight throws up the said carrier and the heads when the projection or shoe *e'* comes in contact with the set screw *H* which stops the revolving motion of the head causing the belt which drives it to slip upon the shaft; at the same time it overcomes the force of the spiral spring and moves the caps around a little on the head. This frame or carrier has the depending guide rods *g*^x which work in the sockets *g*^x on the main frame *A* as seen in Figs. 1, 2 and 3, set screws *g*^{2x} being provided to hold the said rods against movement when desired.

In operation, with a slat strip placed in position, the operator presses upon the treadle and this depresses the heads and releases the projection or shoe *e'* from engagement with the set screws and brings the slat into contact with the saws and at the same time the jaws grasp the slat and the head revolves, cutting the tenons and severing a completed slat. When the operator removes the pressure from off the treadle the counterweight throws up the shaft carrying the heads, the slat is removed from the saws, the shoe or projection comes in contact with the screws, the revolving motion of the heads is thereby stopped, the jaws are opened and the completed slat is dropped out and the slat strip is pushed forward by the operator to the stops which determines the length of the slat and then the same operation is repeated and another slat tenoned.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. The combination with the head-body having gear and a flange with eccentric slots and projection, of the jaws having lateral portions with slots, and the bolts and a cap held thereby partially rotatably on the head body and the screw held in the frame to engage said projection as set forth.

2. The combination with the head-body with flange with eccentric slots and projection, of the cap with ways, the jaws with lat-

eral portions sliding in said ways, the bolts holding the cap to the flange of the head-body and the spiral spring held to the body with one end engaging means on the cap, and the screw held in the frame to engage said projection as and for the purpose specified.

3. The combination with the head - body with eccentric slots and projection, of the sliding jaws, the cap, the bolts holding the same adjustably to the body, means to engage said projection and the spring having a spiral portion the end of which engages a pin on the cap and its other end held within the body, as set forth.

4. The combination with the revoluble head having a projection, of the jaws carried thereby, the rotatable cap mounted on the head, and a screw for engaging said projection, as set forth.

5. The combination with the revoluble head having projection, jaws and a cap for actuating the jaws, of cutters to and from which the work is raised and lowered respectively means substantially as described for raising and lowering the head, as set forth.

6. The combination with the revoluble head having projection, jaws and cap, of cutters to

and from which the work is raised and lowered respectively means substantially as described for raising and lowering the head, and a screw for engaging the projection, as set forth.

7. The combination with the revoluble head having jaws, projection and partially-rotatable cap for actuating the jaws, of a treadle, vertical rod, horizontal pivoted arm and a connection between said arm and the head substantially as described for raising and lowering the head and an adjustable screw for engaging the projection, as set forth.

8. The combination with the head - body having gear at one end and a flange at the other, of the partially-rotatable cap, the jaws actuated by the said cap, and the spring having a portion held within the head and a spiral portion connected with the cap, as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CALVIN D. MARSH.

Witnesses:

J. CLINTON HILL,
BERNHARD BERNDT.