

(No Model.)

2 Sheets—Sheet 1.

A. A. FUCHS.
BOX CLAMPING MACHINE.

No. 468,094.

Patented Feb. 2, 1892.

Fig. 4.

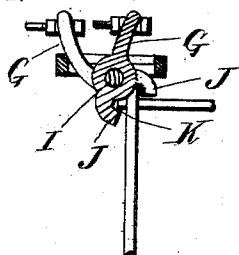


Fig. 1.

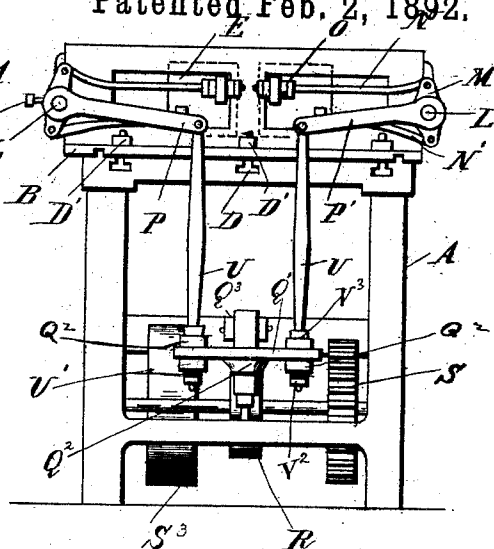


Fig. 2.

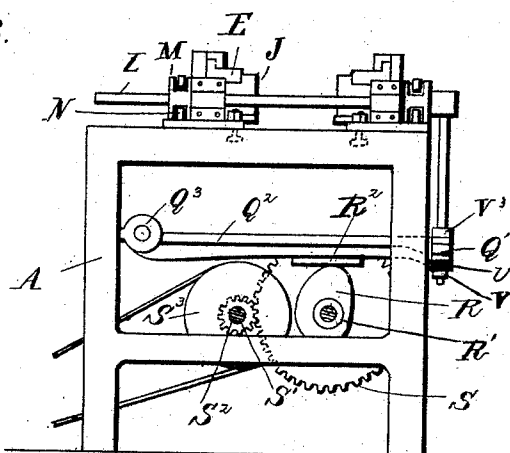


Fig. 6.

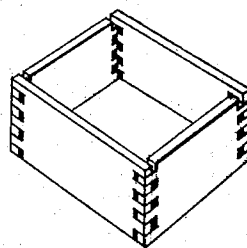
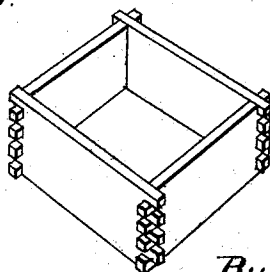


Fig. 7.



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Attys

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Fig. 3.

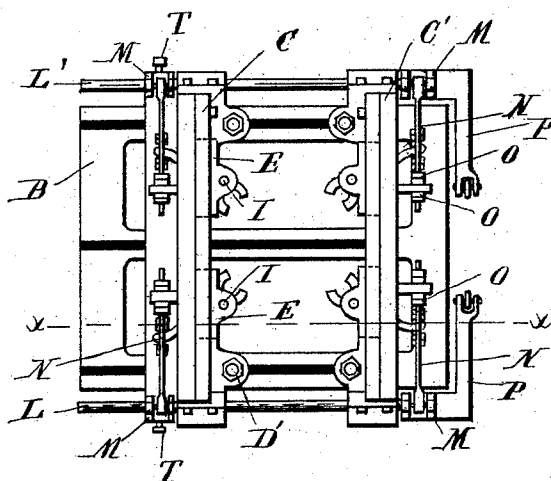
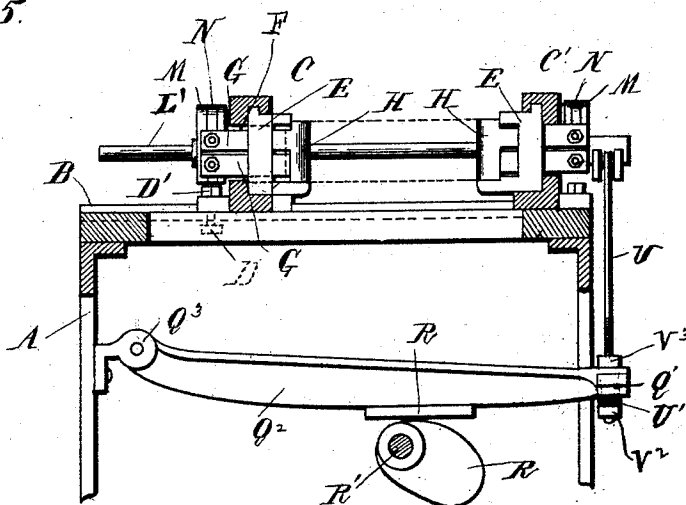


Fig. 5.



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Witnesses
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UNITED STATES PATENT OFFICE.

ARTHUR A. FUCHS, OF TIFFIN, OHIO.

BOX-CLAMPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,094, dated February 2, 1892.

Application filed February 26, 1891. Serial No. 382,970. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR A. FUCHS, a citizen of the United States, residing at Tiffin, in the county of Seneca and State of Ohio, have
5 invented certain new and useful Improvements in Box-Clamping Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful
10 improvements in box-clamping machines; and the invention relates to a machine adapted to clamp the corners of a box in the process of manufacture and to tightly seat the tenons upon one side of the box in the mortise upon
15 the other side of the box, whereby a perfect joint is formed.

The invention consists in the peculiar construction of the box-clamping jaws; further, in means for simultaneously actuating the
20 jaws at each corner of the box; further, in the peculiar construction of the various parts, whereby the adjustment to various sizes of boxes is obtained in the simplest and most expeditious manner without disturbing the
25 actuating mechanism, and, further, in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings which accompany this
30 specification, Figure 1 is a front elevation of my improved machine. Fig. 2 is a side elevation thereof. Fig. 3 is a top plan view. Fig. 4 is a horizontal section through one of the clamps. Fig. 5 is a vertical central cross-
35 section through the machine on line $x x$ in Fig. 3, and Figs. 6 and 7 are perspective views of the box before and after the clamping operation.

A is the frame of the machine.

40 B is the top forming the work-table. Upon this table are two parallel clamp-holding bars C C'. One or both of these bars are adjustably secured. In the drawings I have shown both bars provided with clamping-bolts D, having their heads engaging in suitable correspondingly-shaped apertures in the table
45 and provided with clamping-nuts D', whereby the bars may be adjusted to or from each other. Each bar is provided with a longitudinal guide-groove on its inner face, in
50 which are slidingly and adjustably secured blocks E. The bars are also provided with

horizontal apertures in rear of the blocks E, the blocks being provided with corresponding apertures, through which the actuating-
55 levers G of the clamping-jaws H extend. These clamping-jaws are pivoted upon a common pivot I, secured on the inner side of the block E. The actuating-levers G are arranged one above the other and are of suitable
60 shape to allow of connecting them from a common point of actuation and to actuate them in opposite directions, so that they will clamp the opposite sides of the corner of the box.

The jaws are provided with the heads J, the
65 heads of each bar being arranged at right angles to each other and with a notch or recess K a slight distance in from the head to receive the extension of the tenons without
70 danger of their impinging against the clamping-head, as plainly shown in Fig. 4. These jaws are actuated through the following mechanism: Upon each side of the machine,
75 at the end of the cross-bars and journaled in suitable boxes thereon, are two rock-shafts L L'. Upon these rock-shafts are secured the rock-arms M, extending to both sides thereof. Pivottally secured to the ends of each arm M
80 are the connecting-rods N N', connected, respectively, to the actuating-levers G of the clamping-jaws. These connecting-rods are made adjustable in length by means of suitable
85 nuts O upon either side of the actuating-levers G. The shafts L L' on either side of the machine are rocked by means of the levers P P', secured thereto and extended toward each other at one end of the machine, where they are connected to the vertical connecting rods U, which in turn are connected
90 to the cross-head Q', secured at one end of the lever Q'', which is pivoted at the other end of the machine at Q³. This lever is raised and lowered by means of the cam R upon the shaft R'. This cam engages with
95 the wear-block R² upon the under side of the lever and is of suitable shape to cause the lever to rise and fall as the cam rotates.

Motion is transmitted to the shaft R', upon
100 which the cam is secured, through the medium of the gear-wheel S upon that shaft meshing with the pinion S' upon the shaft S², which is driven from any suitable source of power transmitted to the pulley S³.

It is evident from the description of the parts thus given that the sliding blocks E, carrying the clamping-jaws, may be adjusted to and from each other (suitable adjustment 5 being made upon the connecting-rods N N' at the same time) so as to accommodate any length of box. By adjusting the bars C to or from each other the jaws may be adjusted to different widths of boxes. If desired, suitable means—such as set-screws—may be provided to hold the blocks E securely in place; 10 but it is not deemed necessary, as the connecting-rods N N' and the opposite movement of the actuating-levers G against the box-corners is thought to be sufficient for this purpose. In adjusting these bars the connecting-rods N N' must also be correspondingly adjusted along the shafts, and this is done by means of the set-screws T, by means 20 of which the cross-bars M are secured to the shafts L L'. The parts having been properly adjusted to receive a box of given size, a box is placed upon the table with a corner between each pair of jaws, and motion 25 being imparted to the mechanism in the manner described each side of the box is clamped near the corner, forcing the tenons to seat themselves in the mortises of the adjacent side, the pressure being regulated by means 30 of the adjustment described, so that no damage will be done to the sides of the box. The jaws will be again separated as the cam R turns and also allow the insertion of a new box. To prevent any damage to the parts by 35 the downward movement of the cross-head Q', I place an elastic cushion U' between that cross-head and the nut V² on the lower end of the connecting-rod U, as plainly shown in Fig. 1. Above the cross-head on the rod U is 40 placed a binding-nut V³, which prevents the lever from moving up on the rod, as plainly shown in Fig. 5.

What I claim as my invention is—

1. In a box-clamping machine, the combination of the frame, a series of sliding blocks 45 in the frame, clamping devices on the blocks,

consisting of two or more pivoted jaws having extensions on their outer ends, rock-shafts for engaging the extensions to move the jaws in opposite directions, and means for rocking 50 the shafts, substantially as described.

2. In a box-clamping machine, the combination, with the frame, of two or more pivoted jaws having extensions at their outer ends, rock-shafts on opposite sides of the 55 frame, connections between the rock-shafts and the extensions on the jaws, and actuating means for the rock-shafts, substantially as described.

3. In a box-clamping machine, the combination of the frame, a series of sliding blocks in the frame, clamping devices on the blocks, consisting of two or more pivoted jaws having extensions on their outer ends, rock-shafts on 60 the opposite sides of the frame, rock-arms M on the rock-shafts, connections between the rock-arms M and the extensions on the jaws, and means for actuating the rock-shafts, substantially as described.

4. In a box-clamping machine, the combination of the frame, a series of sliding blocks in the frame, clamping devices on the blocks, consisting of two or more pivoted jaws having extensions on their outer ends, rock-shafts on 70 the opposite sides of the frame, rock-arms M, slidably secured on the rock-shafts, connections between the rock-arms M and the extensions on the jaws, and means for actuating the rock-shafts, substantially as described.

5. In a box-clamping machine, the combination of the drive-shaft, the shaft R', the cam R, the lever Q', the cross-head Q', the rock-arms P, rock-shafts L L', the rock-arms M, 80 connected to said rock-shafts, and the jaws actuated thereby, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR A. FUCHS.

Witnesses:

GRACE BREWER,
N. L. BREWER.