C. H. FUCHS.

Clamp.

No. 163,006. Patented May 11, 1875.

Fig. 1.

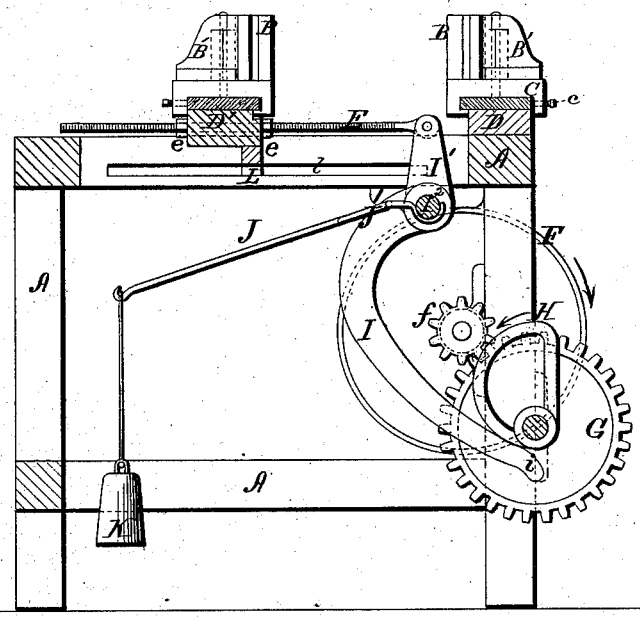


Fig. 2.

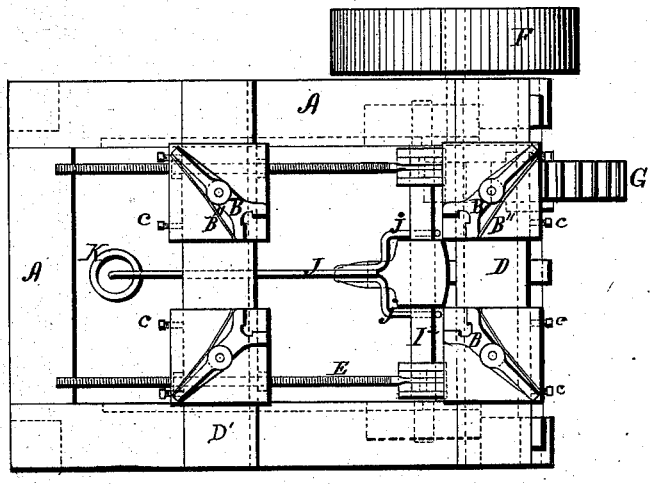
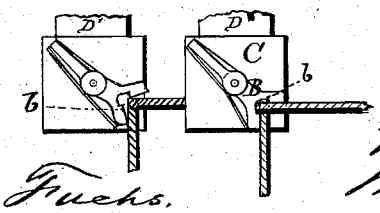


Fig. 3.



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CHARLES H. FUCHS, OF SANDUSKY, OHIO, ASSIGNOR TO M. F. COWDERY AND J. S. COWDERY.

IMPROVEMENT IN CLAMPS.

Specification forming part of Letters Patent No. **163,006**, dated May 11, 1875; application filed February 15, 1875.

To all whom it may concern:

Be it known that I, CHARLES H. FUCHS, of Sandusky, in the county of Erie and State of Ohio, have invented certain new and useful Improvements in Clamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improved press and squarer, designed to press into shape and to square boxes that are formed of pieces with their corners locked. My invention consists, first, in spring angle-blocks, located on top of the machine, for receiving the four corners of a box; (they are made adjustable both laterally and horizontally;) second, in mechanism for adjusting the said blocks horizontally and laterally; third, in forming a recess at the angle inside of the blocks for receiving the projecting ends of the tenons; fourth, in the combination, with the cam, of a lever-arm of a peculiar shape, whereby the blocks are brought together and pressure imparted.

In the drawing, Figure 1 is a side view of my improved machine. Fig. 2 is a plan view of the machine. Fig. 3 is a separate view of one of the blocks, representing the corner of a box embraced therein.

A is a suitable frame-work for supporting the mechanism. B are corner-blocks. They are hinged to the supports B′. B″ are springs, which press against the hinged blocks B, so as to cause them to stand a little open, so that a box may be readily admitted into their angles. *b* are openings or recesses made at the apex of the angle in each block, the object of the said openings or recesses being as indicated in Fig. 3. They are designed to receive the projecting ends of the tenons when the said box is submitted to a pressure in the said blocks. If these recesses were not provided it is evident that the tenons would strike against the sides of the angles, and would prevent the angle-blocks from squaring and pressing the sides. The blocks B and their supports B′ are attached to the sliding bed-plates C. These bed-plates slide longitudinally upon guides D D′. *c* are set-screws. By means of the sliding bed-plates C, the guides D D′, and the set-screws *c*, the blocks B may be adjusted to suit the width of any box. The guide D is stationary, but the guide D′ is attached to the draw-bars E. These draw-bars are screw-cut. *e* are nuts. By loosening the nuts *e* the sliding guide D′ may be adjusted to any position upon the draw-rods E, and then secured in that position by jam-nuts *e*. This adjustment is for the purpose of adjusting the blocks B, so that when the blocks B are brought to a position in which they are nearest together that distance will be equal to the length of any particular sized box that is being squared. F is a drive-wheel, driving the mechanism either by power or by treadle. A cog-wheel, *f*, transmits the motion to the cog-wheel G, upon the shaft of which is an eccentric cam, H. I is a cam-lever, bearing upon the said cam H. It is rounded off and turned slightly backward at *i*, so that as the cam H turns in the direction indicated by the arrow it will always exert its pressure close to the end of the cam-lever I; and that portion, *i*, which is turned back will, after the cam has passed, gradually and without a sudden jerk ride over the outer end of the cam H down upon its flat side. I′ are the short arms of the lever I. They are attached, respectively, to the draw-rods E, so that, as the cam H revolves and presses back the cam-lever I, the short arms I′ will draw upon the rods E and bring the movable guide D′, with its angle-blocks B, forward toward the stationary guide C. J is a lever, bearing a counterpoise-weight, K, the object of which is to draw the movable guide D′ back again to its place after the cam H has left the lever I. L are lugs at each end of the sliding guide D′. These lugs extend into guides *l*, and cause the guide D′ to move backward and forward always in the same plane.

It will be seen that the lever J is provided with fork ends *j*, as shown in Figs. 1 and 2, curved down so as to pass beneath the shaft I″; they come together and join with the lever J over the top of the cam-lever I, a short distance from the shaft I″. It therefore acts as

a lever of the second order, the power being the weight K, the fulcrum being the shaft I″, and the resistance the point J′ on the lever I.

The operation of the device is as follows: In making boxes wherein the corners are locked by tenons upon one piece passing through corresponding mortises in the other piece, it is difficult to bring the corners closely together, and to make the corners of the boxes square. To effect this is the object of this invention. The operator having slipped the pieces together that are to form the sides and ends of the box in the blocks B, so that a corner of the box shall come into each of the angle-blocks B, the sliding guide D′, carrying its two angle-blocks B, is then brought forward by the action of the cam H and the lever I, and the sides or pieces of the box are thus pressed firmly together, and the corners are made square. The blocks B will yield as the pressure is imparted, so that the square faces of the angles will come flat against the corresponding sides of the box. The springs B″ will yield sufficiently to permit the angle-blocks B to thus conform to the sides of the box. As soon, however, as the pressure is relieved, the springs B″ will open out, and the angle-blocks B are again ready for the next box.

The sides and ends of the box, being thus fastened together and squared, may be finished by dressing off the projecting tenons at its corners.

The view at the left hand in Fig. 3 represents one of the angle-blocks B with the corner of a box placed therein, as it would appear standing open before the pressure is transmitted. The figure at the right in Fig. 3 would indicate the position of the blocks B, and of the box-corner after the pressure had been transmitted.

It is evident that the lever J and weight K is only a means whereby the guide D′ and its blocks B are made to recede after pressure has been imparted. Any other means may be employed that will effect the purpose—as, for instance, a spring acting upon the arms of the lever, or upon the guide D′. So, also, it is apparent that this mechanism may be employed to cause the movable angular jaws or blocks to approach the stationary ones. It is also apparent that both sets of blocks may be made movable, instead of making one set stationary, without departing from the principle of my invention, the principal features of which are the jaws, provided with the right-angular openings for receiving the box-corners, and suitable mechanism for bringing them together, so as to impart sufficient pressure to square the angles; also, in connection with blocks of that character, springs, whereby the said right-angular jaws are caused to open in order that a box may be readily inserted.

What I claim as new, and desire to secure by Letters Patent, is—

1. The lock-corner-box squarer and presser, consisting of two stationary and two movable angle-blocks, B, said blocks B having recesses *b*, for receiving the corners of the box, and suitable mechanism for bringing the movable blocks toward the stationary blocks, substantially as and for the purpose described.

2. The combination, with a hinged block, B, of bed-plates C and guides D′, whereby said blocks may be adjusted laterally, thus corresponding to different-sized boxes, substantially as and for the purposes described.

3. The hinged blocks B, provided with a right-angular mouth and spring B″, substantially as and for the purpose described.

4. The block B, provided with an angular recess, *b*, for receiving the ends of the tenons, substantially as and for the purpose described.

5. The combination of the cam H, the lever I I′, and rod E with the sliding guide D′ and mechanism J K, for causing the said guide D′ to recede, substantially as and for the purpose described.

6. The combination, with a screw-cut shaft, E, and nuts *e*, of guide-blocks D and block B, whereby the said blocks may be adjusted to any position on the shaft, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. FUCHS.

Witnesses:

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H. T. HOWER.