T. SANDBACH.

Clamp.

No. 167,127. Patented Aug. 24, 1875.

Fig. 1.

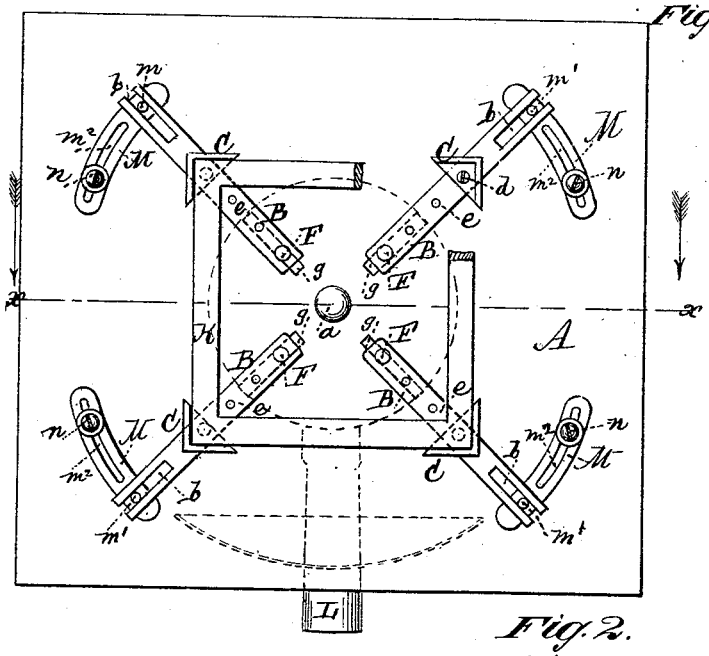


Fig. 4.

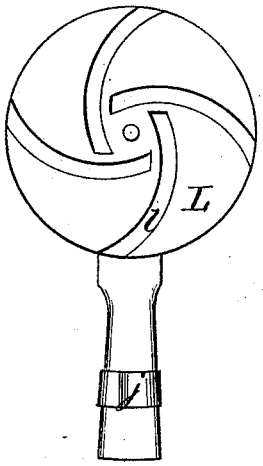


Fig. 2.

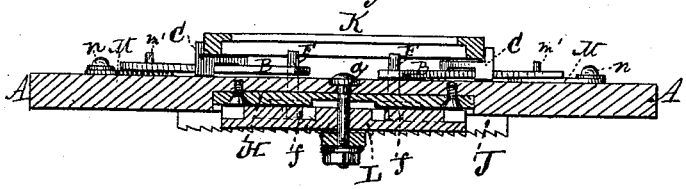
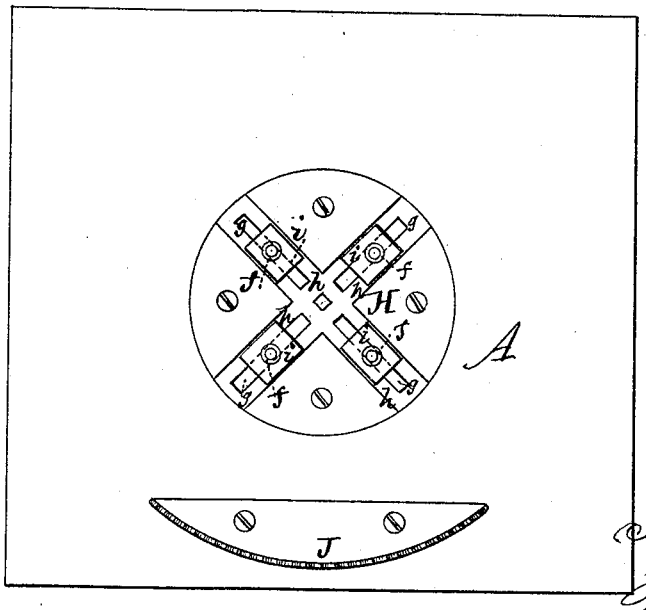


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS SANDBACH, OF SOUTH BEND, INDIANA.

IMPROVEMENT IN CLAMPS.

Specification forming part of Letters Patent No. **167,127**, dated August 24, 1875; application filed February 2, 1875.

To all whom it may concern:

Be it known that I, THOMAS SANDBACH, of South Bend, in the county of St. Joseph and State of Indiana, have invented an Improvement in Clamps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to that class of apparatus for clamping the corners of frames and holding them in place while the joints are secured, in which a series of adjustable shoes and sliding rods or bars are employed.

My invention has for its object to guide the bars and shoes in the proper direction, and the improvements will be fully hereinafter described, and pointed out in the claim.

In the accompanying drawing, Figure 1 is a top view of my invention. Fig. 2 is a section taken in the line *x x* of Fig. 1. Fig. 3 is a bottom view. Fig. 4 is a view of the working-surface of the cam or eccentric lever.

A represents the base or bed plate to which the working parts are attached, in the center of which is a bolt, *a*, forming the pivot on which the cam-lever turns. On the upper side of the bed-plate are four sliding rods or bars, B, to which are attached shoes C, of angular internal form. The shoes are attached to the rods or bars B by means of screws *d*, corresponding with a number of screw-holes, *e*, in each bar, by which means the shoes may be adjusted to different positions on the bars to correspond with frames of different sizes. The inner ends of the bars B are perforated, and through them pass the upper ends of pins or short rods F, which work in slots *g*, formed in the bed-plate in a diagonal direction between the center and the four corners of the same. To the lower portion of each of the pins F is attached a block, *i*, corresponding with, and sliding in, a groove, *h*, in a plate, H, attached to the under side of the base A, there being four of these grooves, lying at right angles with each other, diagonally with relation to the base A, and parallel with the slots *g* and rods B, by which means the rods B are guided in their movement toward or from the center of the bed-plate.

If desired, the plate H may be dispensed with, and the grooves *h* may be formed directly in the under side of the base or bed plate A.

On the lower ends of the pins F are friction-rollers *f*, which, with said lower ends, engage with grooves *l* on the upper side of the lever L, the inner end of which is enlarged and rounded, and is pivoted to the under side of the base or bed plate A by means of the bolt *a*. The grooves *l* are arranged eccentrically with relation to the pivot *a*, so that the lever L operates as a cam when acting on the pins F. The outer portion of the lever L is arranged with a pawl, *j*, to engage with an arc-formed ratchet, J, on the under side of the base A, by which means it is held in any position in which it is placed.

By turning the lever H in one direction, the cam-grooves *l*, by their engagement with the pins F, draw the rods B toward the center, and with them the shoes C, thus clamping the corners of the frame K placed therein, as shown in Fig. 1. By turning the lever in an opposite direction, the shoes are forced outward, loosening their hold upon the corners of the frame, so as to allow the frame to be removed.

The frame K shown in the drawing is square, and, consequently, the rods B occupy positions at right angles with each other. When the frame to be clamped is oblong, the direction of the rods must be changed to correspond therewith; and, in order that they may be guided in the proper direction, according to the shape of the frame to be operated upon, their outer ends are formed with slots *b*, which engage with studs m^1, projecting upward from bars M on the upper side of the bed-plate A. In these bars are slots m^2, through which screws *n* pass into the bed-plate, for the purpose of holding the bars in the desired positions.

By loosening the screws the bars may be moved the required distance in either direction, to regulate the line of motion of the rods B, and by tightening the screws the bars are held in place.

This invention is intended particularly for use in connection with picture-frames, but is

applicable to window and other frames, whether provided with mortise and tenon or miter joints.

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

The combination of the adjustable slotted bars M, provided with the studs m^1, and the bars or rods B, having the slots *b*, constructed to operate substantially as and for the purpose shown and described.

THOMAS SANDBACH.

Witnesses:
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