G. W. Da CUNHA.

Drawing-Broad.

No. 216,662. Patented June 17, 1879.

Fig. 1.

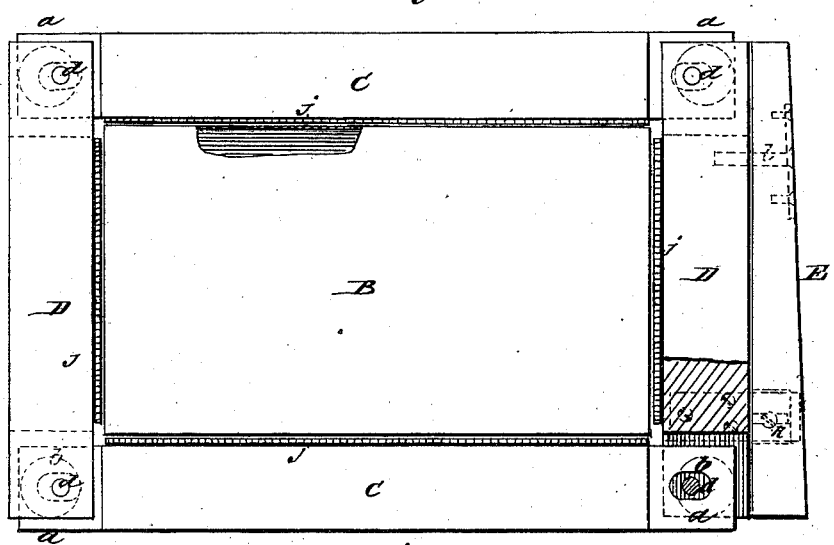


Fig. 2.

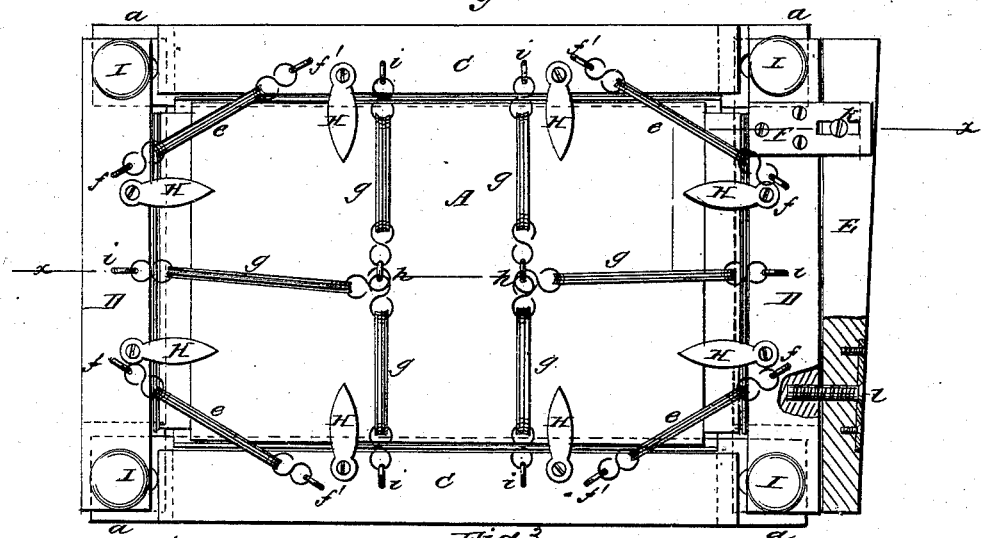
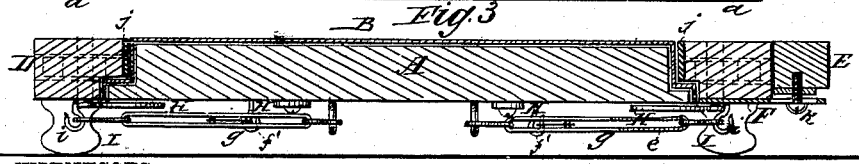


Fig. 3



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GEORGE W. DA CUNHA, OF NEW YORK, N. Y.

IMPROVEMENT IN DRAWING-BOARDS.

Specification forming part of Letters Patent No. **216,662**, dated June 17, 1879; application filed February 24, 1879.

To all whom it may concern:

Be it known that I, GEORGE W. DA CUNHA, of the city, county, and State of New York, have invented a new and Improved Drawing-Board, of which the following is a specification.

The object of this invention is to enable the frame to be kept squarely in contact with the edges of the board, and thus compensate for shrinkage and prevent the paper from becoming loose, and also to furnish an adjustable squaring-edge.

It consists, first, in providing the side pieces of the frame with slotted tenons, which are fitted into mortises in the ends of the end pieces and connected therewith by pins, whereby a limited movement is allowed the frame, so that the pieces can be kept in contact with the edges of the board; secondly, in connecting the end pieces with the sides by elastic straps, to hold them tightly together by a strain continuously exerted, and also connecting them with the board by similar straps, so as to keep them pressed against the folded edges of the paper, to keep it tightly on the board.

In the accompanying drawings, Figure 1 is a top view of the improvement. Fig. 2 is a back view of the same. Fig. 3 is a section on line *x x*, Fig. 2.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the drawing-board proper, on which the paper B is stretched. C C are the sides of the frame, and D D are the ends. The ends of the side pieces are provided with tenons *a*, in which are slots *b*, and the ends of the end pieces are provided with mortises to receive the tenons *a*.

Pins *d* are passed through holes in the mortises and the slots *b* in the tenons, as clearly shown in Fig. 1, and thus join the ends together around the board A; but the slots in the tenons being larger than the pins *d*, a certain amount of play is allowed to the ends and sides of the frame.

At the back the sides and ends are connected together by elastic straps *e*, provided with metal loops at the ends, one being joined to the close eye *f* on the end piece, and the other engaged by the open hooks *f'* on the side pieces. These straps, it will be observed, are passed diagonally from the sides to the ends without being connected with the board A, and thus the ends and sides mutually draw each other.

The ends and sides of the frame are connected with the board A at the back by elastic bands or straps *g*, three at each end, the metal loops whereof at one end are joined to the eyes *h*, screwed in the back of the board, and at the other end are caught over the hooks *i*, screwed into sides and ends. These elastic bands, when fastened, draw the sides and ends to the edges of the board and hold them in close contact therewith.

The edges of the sides and ends are rabbeted on the under side, and the edges of the board A are rabbeted in the opposite direction, whereby, when put together, they form a rabbet-joint, as clearly shown in Fig. 3. The projecting edges of the sides and ends are faced with rubber *j*, to furnish an elastic cushion to bear against the lapped edges of the paper, as shown clearly in Fig. 3.

E represents a squaring-piece applied to one end of the frame. At one end it is connected by a screw, *k*, passed through a slot in the plate F, attached to the end piece. At the other end it is fastened by a screw, *l*, passed through it into the end piece. In case of the frame being thrown out of square by the unequal contraction of the board, this piece can be adjusted to and from end piece to compensate therefor, and thus furnish a ruling-edge square to the lines of the drawing.

Buttons H, pivoted to the frame, serve to keep the board in the frame, and knobs I placed in the frame at the corners, on the under side, serve as feet to support the board above the table.

The board is used as follows: The paper is stretched on the board A in the usual manner, and the edges lapped over the edges of the board, which is then inserted in the frame. The straps *e*, being attached at one end and only hooked at the other, are easily unfastened, to permit the frame to be expanded sufficiently to admit the board. When it is placed in the frame, the sides and ends are pushed up against it, pressing the lapped edges of the paper between them and in the rabbeted

joint, as shown in Fig. 3. The straps *e* are then hooked in place, the buttons H turned over the board, and the straps *g* also hooked, thus securing the board and frame together, in the manner shown in Figs. 1 and 2. This holds the frame and board closely together, and as the paper dries and shrinks the pressure of the rubber cushions *j* against its lapped edges under the constant strain of the elastic bands holds the lapped edges tightly, and the paper thus shrinks over the board smoothly and without slipping. This pressure is exerted all around; and, in addition, there is a strain upon the sides and ends themselves through the straps *e*, whereby if the board A shrinks in either direction the parts of the frame are caused to follow it by the strain of the rubber straps, the play allowed by the slots *b* permitting the parts ample movement for this purpose, and thus a constant pressure is exerted upon the lapped edges of the paper, whereby they are held tightly and the paper is kept smoothly on the board. Thus the paper is firmly secured to the board without the use of paste, and the shrinkage of the board does not affect the clamping of the frame, as the strain of the straps compels it to bear against the board and follow it as it shrinks.

In case by shrinkage the squareness of the board is lost, and the relations of the line to the edges changed so that they cannot be used, the piece E is adjusted to suit the changed condition of the board, and thus a ruling-edge is obtained for continuing the work or the plan.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. As an improvement in drawing-boards, a frame for inclosing the same and holding the paper on the board, composed of side pieces, C, and end pieces, D, joined together by a mortise-and-tenon joint, and secured together by pins passed through holes in the mortises and enlarged slots in the tenons, so as to allow a slight play or movement at the joint, and thus enable the frame to be contracted and expanded to adapt it to the board, substantially as described.

2. In combination with an adjustable frame, the elastic bands or straps *e*, connecting the side and end pieces thereof, to exert a constant pressure on the parts, and thus hold them steadily together and to the board, substantially as described.

3. In combination with the board A and adjustable side and end pieces forming the frame, the elastic straps *g*, connecting the board and said pieces together, whereby a constant strain is exerted to keep the frame against the edges of the board, to clamp the paper on the board, and to adjust the frame to the shrinkage of the board, and thus prevent the paper from becoming loosened, substantially as described.

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Witnesses:

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