Sheet 1 - 2 Sheets.

D. Bull,

Miter Box,

No. 55,576. Patented June 12, 1866.

Fig. 1.

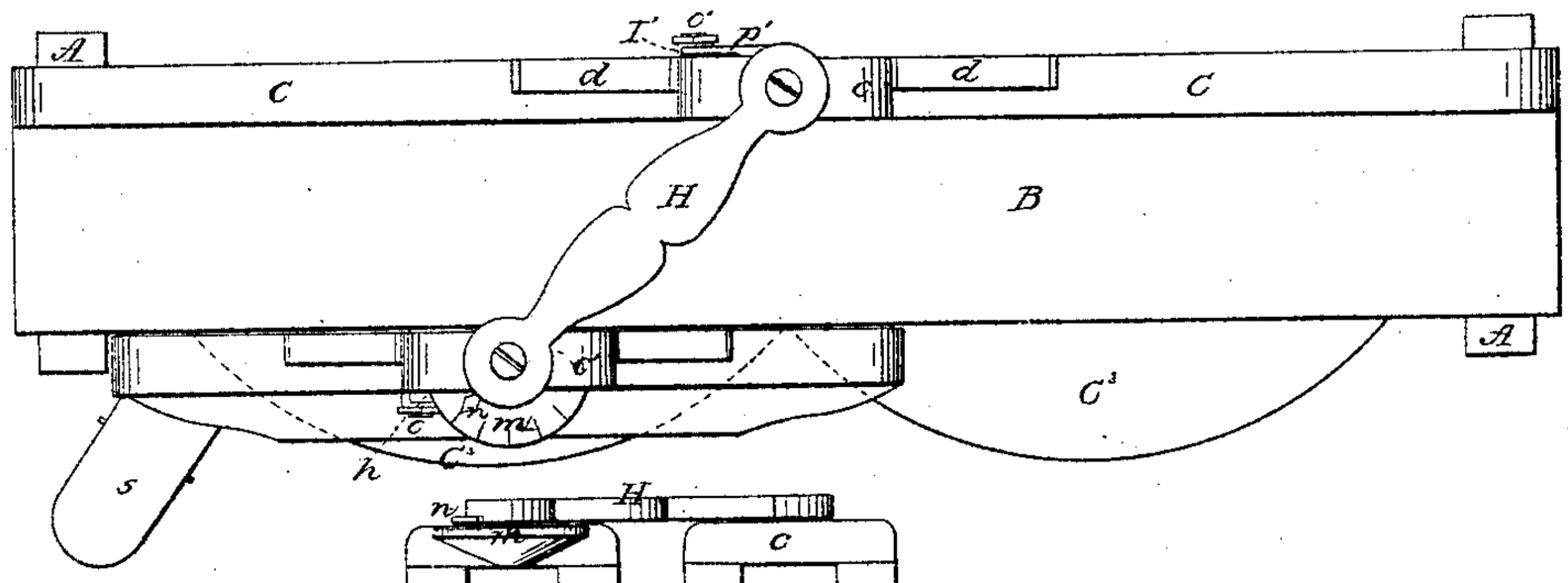


Fig. 2.

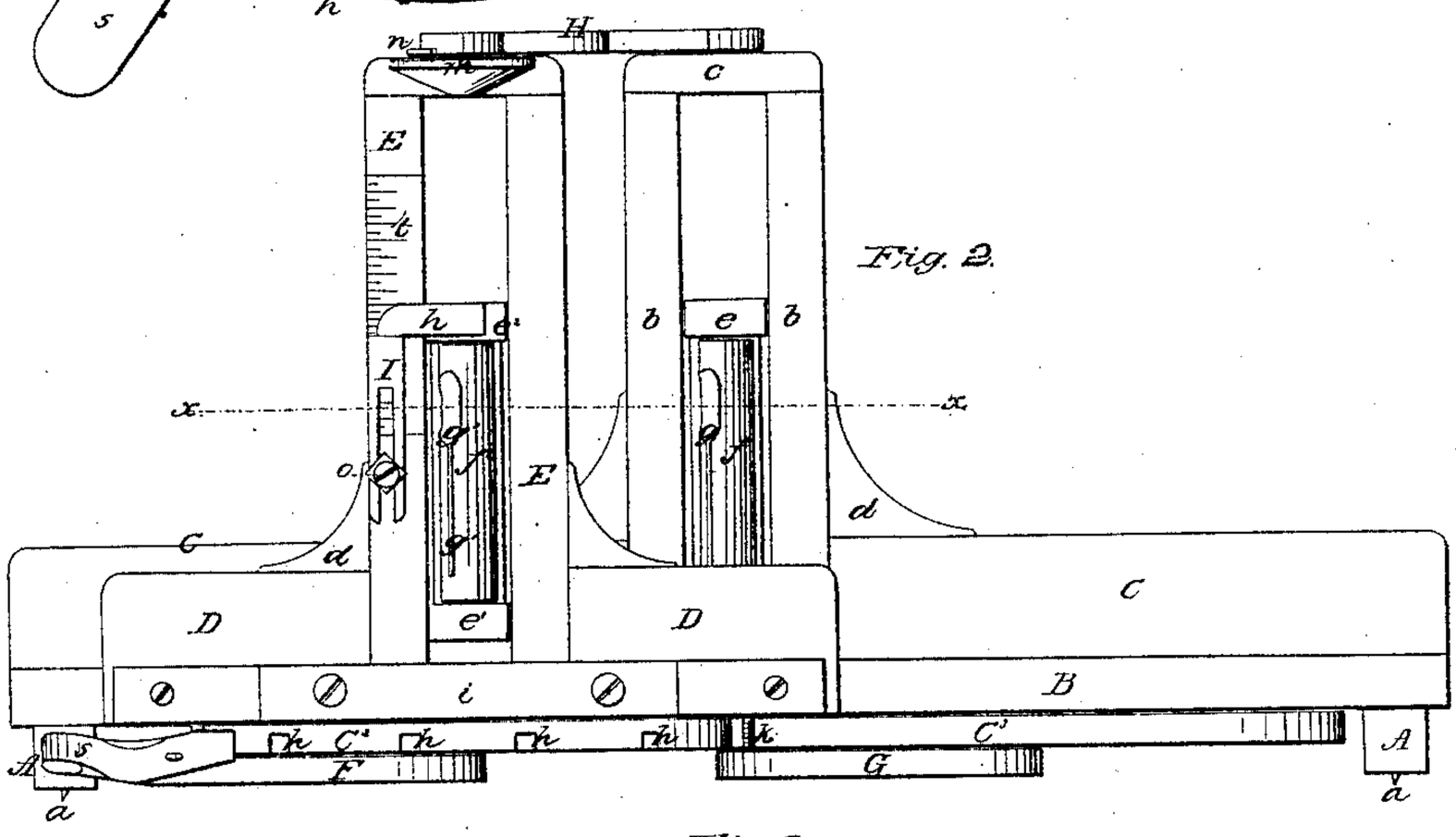
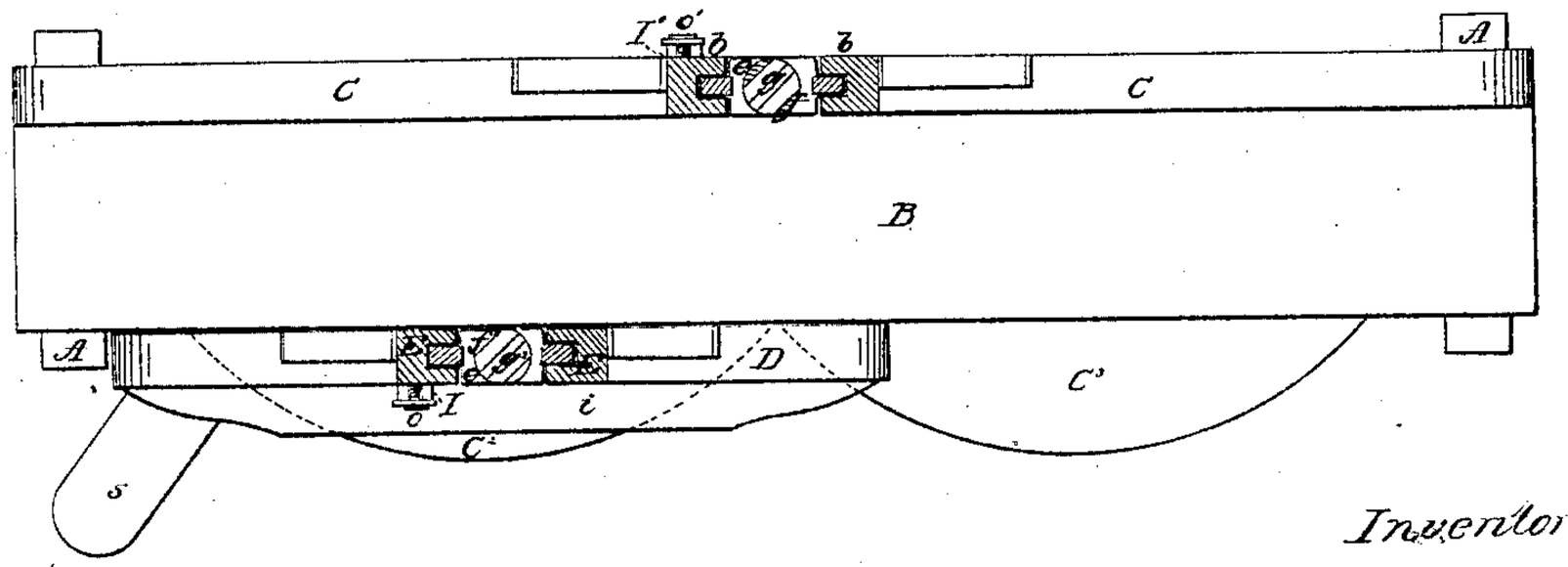


Fig. 3.



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AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

Sheet 2 - 2 Sheets.

D. Bull,

Miter Box,

No. 55,576. Patented June 12, 1866.

Fig. 4.

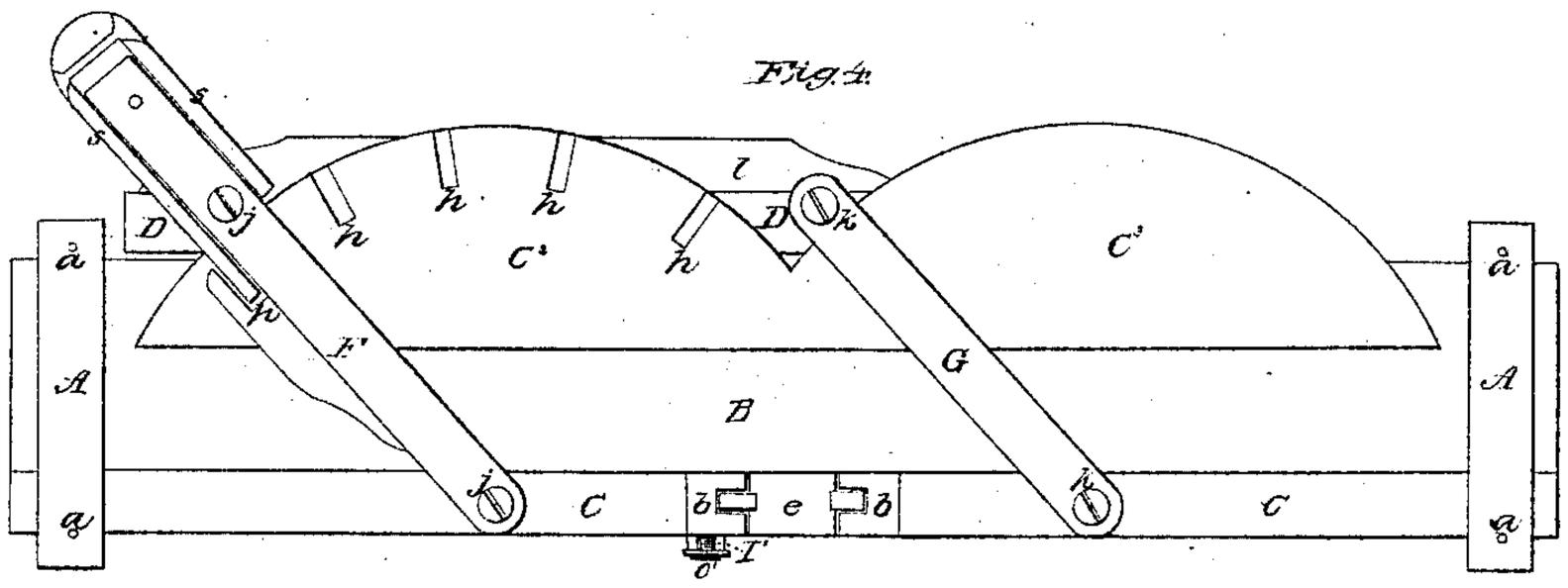


Fig. 5.

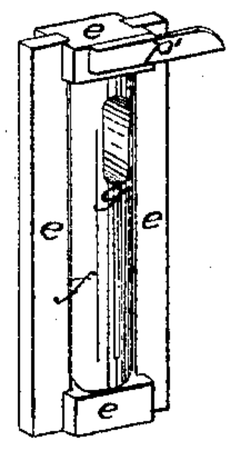
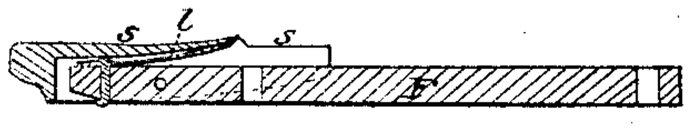


Fig. 6.



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UNITED STATES PATENT OFFICE.

DANIEL BULL, OF AMBOY, ILLINOIS, ASSIGNOR TO HIMSELF, C. D. VAUGHN, AND F. A. GIBBS.

IMPROVEMENT IN MITER-BOXES.

Specification forming part of Letters Patent No. **55,576**, dated June 12, 1866.

To all whom it may concern:

Be it known that I, DANIEL BULL, of Amboy, in the county of Lee and State of Illinois, have invented a new and useful Improvement in Miter-Boxes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top view, Fig. 2 a front view, and Fig. 3 a horizontal section in the line *x x*, of the miter-box. Fig. 4 is a bottom view of the miter-box. Figs. 5 and 6 are details of the miter-box.

Similar letters of reference in the several figures indicate corresponding parts.

The nature of my invention consists, first, in a parallel-moving saw-guide frame furnished with a slotted roller, which is hung in a sliding sash of said frame, this parallel-moving frame operating in conjunction with a stationary saw-guide frame, which also is furnished with a slotted roller hung in a sliding sash, the two frames and their sashes with rollers being so connected together and the parallel-moving frame so controlled that any desired miter or miter-tenon can at will be readily cut and in a very accurate manner.

It consists, secondly, in the combination of a segment-notched plate, parallel-moving frame, and combined thumb-catch and lever, whereby the miter-box may be very readily adjusted and set for cutting any desired miter with one hand. The said segment-plate also answers as a support to the parallel-moving frame at one end, a similar plate, but not notched, supporting it at the other end.

It consists, thirdly, in the combination of an index-plate at the upper end of the parallel-moving frame with the segment notched plate and with a pivoted cross bar or tie of the stationary frame and parallel-moving frame, the front end of said cross-tie having a pointer attached to or formed on it. This combination enables the operator to cut the desired miter with unerring certainty, and saves much time and inconvenience.

It consists, fourthly, in the combination of adjustable stops or gages on one or both of the saw-guide frames with lugs or pointers of the roller-sashes, whereby any desired depth of miter-tenon may be cut by the saw, the said gage-stops and the lugs being applied opposite to or in front of a graduated scale marked on the frame, if desired, in order that the exact depth of cut may be accurately determined. By this arrangement of the gage, stops, and lugs or pointers the difficulty from sawdust and other matter liable to get under the sashes and prevent their full descent is wholly avoided.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A A are cross-sills with sharp spurs *a a* extending down from their under sides. B is the bottom or bed piece of the miter-box, and C the back-board thereof. These two pieces are screwed together and firmly fastened to the sills A A. The back-board is cut away for a short distance about midway of its length, and in the recess thus formed two grooved standards, placed a short distance apart, are inserted, as indicated at *b b*. The grooves of these standards extend from top to bottom. A capping-piece, *c*, ties the two grooved standards together, and braces *d d* stay them against the lateral thrusts of the saw.

Between the standards a sash, *e e f*, is placed so as to fit very snugly, but so as to slide up and down freely. The parts *e e* of this sash are tongued so as to fit the grooves of the standards. The part *f* is of cylindric form, and is furnished with short journals, which are fitted to boxes or bearings in the centers of the parts *e e*, so as to turn freely therein. Through this cylindrical part of the sash a passage or slot corresponding to the form of a miter-saw is cut, as indicated at *g*.

C^2 C^3 are two segments formed on a depressed plate of the base or bottom B of the mitre-box, for the purpose of supporting and steadying a parallel-moving frame, hereinafter described. The particular form of these supports C^2 C^3, I do not confine myself to, as they may be of other form so long as they permit the parallel-moving frame to sweep a segment of a circle. These segments intersect one another at a point which is opposite the center of the sash just described.

On the under side of the segment C^2 a number of radial notches are made, as represented at *h h*. On the upper extreme side of these seg-

ments a short front board or piece, D, braced by a notched piece, *i*, rests, and on it two grooved standards, E E, are firmly fastened. Between said standards a sash, *e' e' f' g'*, constructed in all respects similar to the one described, is arranged so as to slide up and down.

The saw-guide frame thus formed on the front side of the miter-box is not fixed, as is the case with the saw-guide frame first described. To connect it loosely to the miter-box two parallel links, F G, are pivoted to its under side and to the under side of the miter-box, as at *j j k k*. These links allow this saw-guide frame to move parallel with the front edge of the miter-box to any desired extent. The link F is extended beyond the front piece, D, so as to form a handle or lever, and over this extended portion a pivoted thumb-catch, *s*, of box form, is arranged, as shown. This thumb-catch is shaped so as to pass under the segment C^2 and enter one or another of the notches when the upward pressure of the thumb is withdrawn from it. A spring, *l*, causes it to enter and remain in the respective notches.

In order to stay and steady the two saw-guide frames described, a top cross-tie, H, is pivoted to the capping-pieces of the respective standards or frames; and in order to indicate the adjustments which are made for sawing different miters on the notched segment, an index-plate, *m*, is attached to the capping-piece of the front guide-frame, and a pointer, *n*, is affixed to the cross-tie H, as represented. There are also adjustable slotted gage-stops I I' fastened to the front and back faces of the two guide-frames by set-screws *o o*, and in connection with these pointers or lugs *p p'* are employed, the same being fastened to or formed on the sashes of the frames, as shown. On one of the respective standards of each frame an index, *t*, is marked, as represented. These stops, pointers, and indices enable the operator to make and maintain any desired adjustment for cutting miter-tenons. All these parts are above the base of the sash, and hence they are not liable to become covered with sawdust and other matter which would make the operation of sawing miter tenons very uncertain or inaccurate.

By having a parallel-moving frame the miter-box can be made much more compact and narrower than when the frame moves in an arc of a circle. The cylindric or roller guides will also admit of the frame being adjusted while the saw is across the box, thus greatly facilitating the work of sawing miters, it being obvious that the rollers will turn in their sashes whenever the parallel-moving guide-frame is adjusted.

My arrangement and construction also give great rigidity and firmness to the box, and thus any deflection of the saw in its operation is obviated. The construction also affords two side pieces or boards, between which the piece to be sawed may be keyed or wedged, if desirable, before the operation of sawing the miters or tenons is commenced.

My miter-box is constructed wholly of metal, or it may be partly of wood and partly of metal. The only essential thing in regard to the material is to have it of such a character that it will be durable and not subject to serious changes from expansion and contraction.

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

1. The parallel-moving saw-guide frame, arranged, constructed, and operating substantially as and for the purpose set forth.

2. Arranging the slotted self-adjusting cylinders or rollers in sashes *e e*, or their equivalents, in combination with the parallel-moving frame and the stationary frame, all constructed and operating substantially as described.

3. The adjustable gage-stops I, in combination with the saw-guide frames and the lugs or pointers *p*, all constructed and arranged substantially as described.

4. The combination of the index-plate *m*, cross-tie H *n*, parallel-moving frame and notched segment C^2 C^3, substantially as described.

5. The combination of the segment notched plate C^2 C^3, parallel-moving saw-guide frame, and combined thumb-catch and lever or link F, all constructed and arranged substantially as described.

6. The stationary saw-guide frame constructed with a self-adjusting roller, in combination with the parallel-moving saw-guide frame, also constructed with a self-adjusting roller, and with a front board or piece, D D, the said parts being applied together on a miter-box, which is constructed and furnished with the appurtenances described, substantially as set forth.

DANIEL BULL.

Witnesses:

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