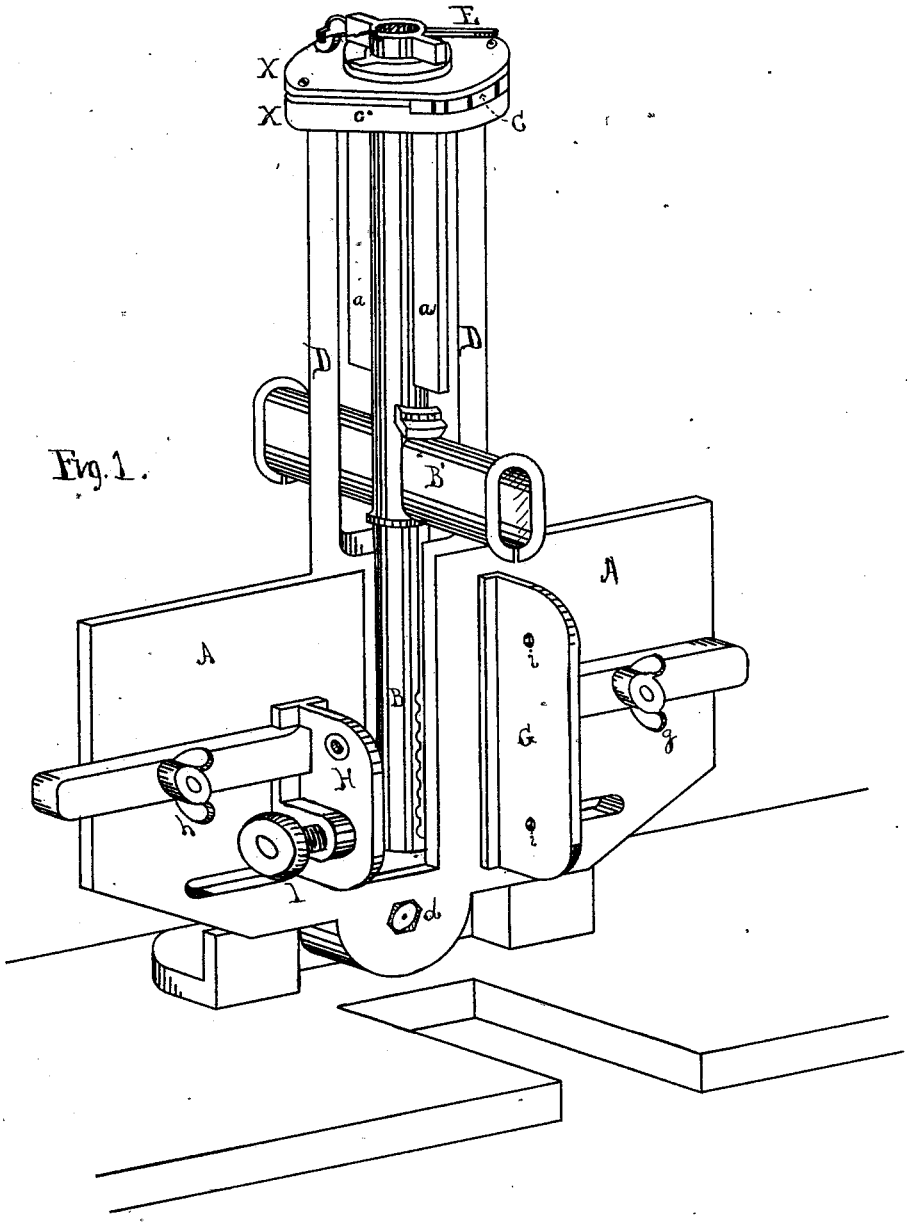
2 Sheets—Sheet 1.

J. B. CURRIER.

SAW-GUIDES FOR CUTTING MITERS, &c.

No. 191,659. Patented June 5, 1877.

Fig. 1.



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2 Sheets—Sheet 2

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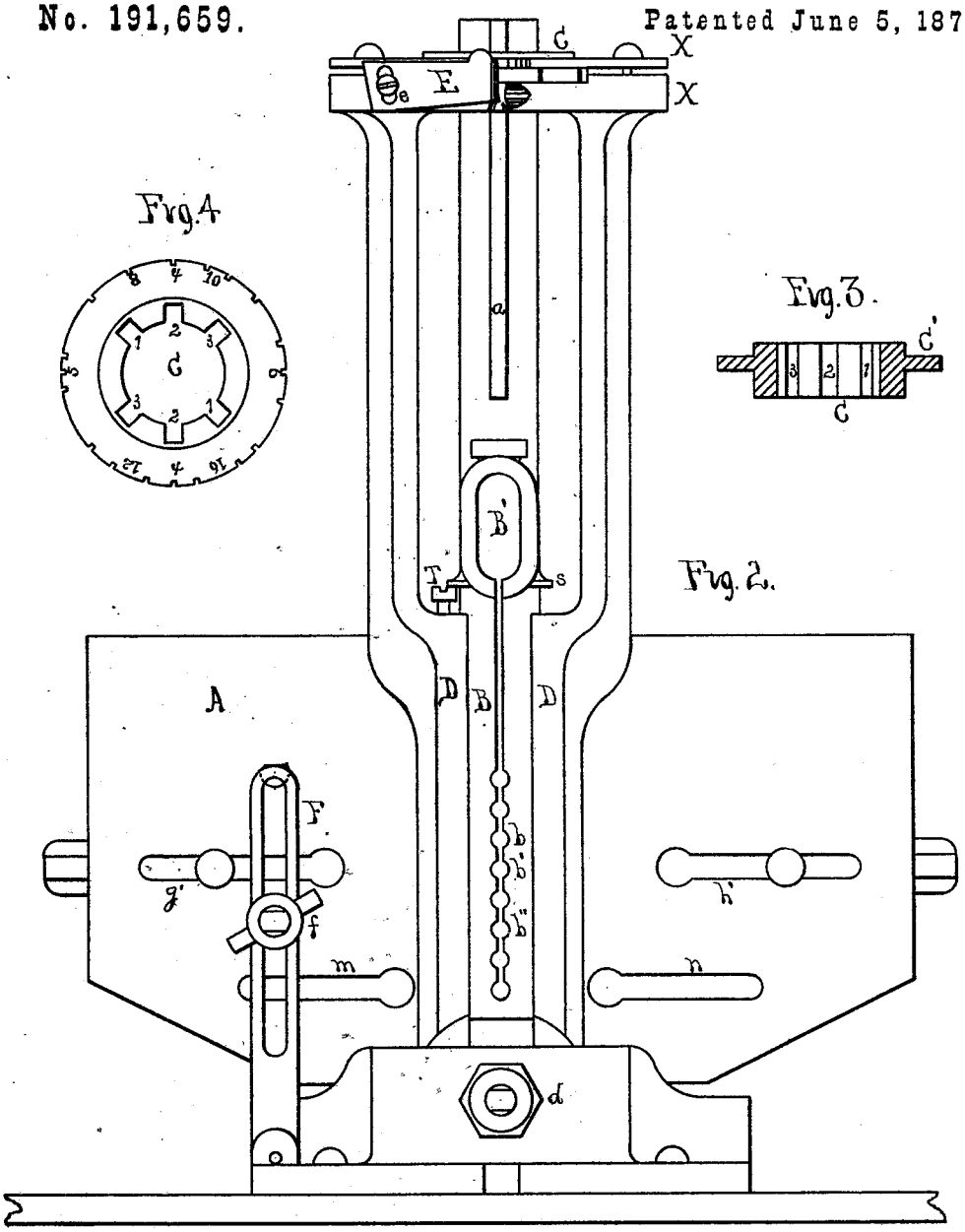
Fig. 4

Fig. 3.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JACOB B. CURRIER, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN SAW-GUIDES FOR CUTTING MITERS, &c.

Specification forming part of Letters Patent No. **191,659**, dated June 5, 1877; application filed March 22, 1877.

To all whom it may concern:

Be it known that I, JACOB B. CURRIER, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Tool for Sawing Miters, Tenons, &c., of which the following is a description:

The object of my invention is to provide a tool by means of which both miters and tenons may be sawed at any desired angle, either in a horizontal direction or vertical direction, or both; and it consists, first, in combining with a vertically-sliding and horizontally-turning saw-guide, an adjustable index-plate, through which the saw-guide slides vertically, which index-plate, by means of suitably-arranged indices, may be so set and held that any desired angle in a horizontal direction and its opposite or mate may be cut; and, second, in the construction, for a saw-guide, as above mentioned, of a holder, which is pivoted at a point below the saw-guide, the said saw-guide and holder being capable of such adjustment independent of each other that any desired angle in a vertical direction and its mate may be cut, or any angle may be cut both horizontally and vertically.

In the drawings, Figure 1 is a front view. Fig. 2 is a rear elevation. Fig. 3 is a vertical section of the index-plate, and Fig. 4 is a plan of the same.

A is the plate, against which the piece to be sawed is placed. D D are the posts which form the saw-guide holder, and at the top of the posts I place the index-holder X. These several parts, for convenience, I make of one casting. B is the saw-guide, having the arms B′ B′ adapted to receive and hold a rib-backed saw. The saw-guide is slotted for the blade of the saw, and this slot may be widened at the bottom, or a series of openings made, as shown at *b b′ b″*. This saw-guide is also provided with two opposite longitudinal splines, *a a*, a cylindrical portion of the saw-guide being left between the ends of these splines and the arms B′ B′. This cylindrical part of the saw-guide fits an annular opening in the index-plate, and the saw-guide may be held up above the piece to be sawed by resting the splines on the top of the index-plate. Directly under the arms B′ B′ I make an annular shoulder, *s s*, upon the saw-guide B, and in one of the posts D I insert a screw, T, against the head of which the annular shoulder will strike, so that the screw-head may be unscrewed to any point, and prevent the saw-guide from descending below it. By this means the depth of cut of tenons and vertical angles may be regulated. C is the index-plate, through which the saw-guide slides vertically. The former is provided with internal slots, 1 1, 2 2, &c., to receive the splines *a a* accurately and hold the saw-guide in place. This index-plate has an outer shoulder or rim, C′, on which are the notched indices 4, 5, 8, &c. A plate or cover, X′, is screwed down upon it, and it is held by the spring-clamp E, the clamping end fitting into the notches 4, 5, 8, &c. This spring-clamp is attached to the index-holder by a set-screw, which passes through a diagonal slot in the clamp. This index-plate, on its exterior, is made concentric with the longitudinal axis of the saw-guide, and is fitted into an annular cavity in its holder, which forms a bearing for it as it is revolved, and, with its cap-plate, holds it in place. This index-plate is marked in the following manner: The outer circumference is first divided into quadrants 4 5 4 6. The slots 2 2 are then cut internally on the same diameter with the notches 4 4, and the slots 1 1 3 3, also internally, at an angle of forty-five degrees to this diameter. As now marked, only a right angle, or a miter of forty-five degrees, will be cut. As the slots 2 3 are made at an angle of forty-five degrees, a diameter bisecting this angle would give the octagonal index-notch 8. Turning to the notch marked 5, I mark off an arc of nine degrees on either side of the point 5, this being one-half the difference between the angles of a square and pentagon. From the notch 6 of the index-plate arcs of fifteen degrees are marked on each side, this being one-half the difference between the angles of a square and hexagon. Other angles are marked in a similar manner. It is obvious that the slots 1, 2, 3, &c., may be cut at different angles from those shown in the drawings, and different combinations taken on the rim C′, so that the index-plate may be marked to saw a different combination of angles.

If at any time the index-plate is found to be out of a perfectly-true position, it may easily

be adjusted by means of the spring-clamp E and set-screw *e*, a diagonal slot increasing or diminishing the distance of the clamping end from the set-screw, according as the clamp is lowered or raised.

An additional feature of this part of my invention consists in the adjustability of the index-plate to match any desired angle not marked—as, when it is desired to match an angle already cut, by turning the saw against the face of the piece to be matched, and taking the distance, with dividers, from the point *c* (shown in Fig. 1) to the notch in the plane of the saw, the desired position of the saw will be found by turning the index-plate so that the same notch will be equally distant from a corresponding point, *c'*, on the opposite side of the index-holder.

The plate A and saw-guide holder D D, as before mentioned, are cast together, and are pivoted at *d*. Behind the plate A I attach the link F, having a slot, through which the set-screw *f* passes, which serves to secure the saw-guide and its holder in any desired position. This link may be marked for the vertical angles of the saw-guide, or the plate itself may be. The saw-guide may now be turned upon its pivot *d* to any desired vertical angle, and tenons and other vertical angles be sawed.

G and H are removable gage-irons, against which the piece to be sawed vertically may be held. These gage-irons are held in position by the set-screws *g* and *h*, which pass through slots *g'* and *h'* in the plate A, and they may be set either vertically or at an angle. In the gage-iron G I make screw-holes *i i*, so that beveled or irregular-shaped pieces may be screwed thereto and form a plate of any necessary form, against which the piece to be sawed is held. The gage-iron H is provided with one screw-hole and a thumb-screw, I, which may be used when it is desired to do fine and perfectly-true work. These gage-irons may be shifted to the lower slots *m* and *n*.

Miters are sawed in the following manner: To saw a miter of forty-five degrees the index-plate is clamped at any of the quadrangular notches, as at 5. The saw-guide is then turned so that the splines *a a* enter the internal slots 1 1, and this miter sawed. Its opposite or mate will be sawed by turning the saw-guide so that the splines enter the slots 3 3. A pentagonal miter is sawed by clamping the index-plate at the first notch from the point 5, and turning the saw-guide so that the splines will enter the internal slots on the same side, as 1 1. To cut the mate to this miter, turn the index-plate and clamp it at the first notch on the other side of the index 5, then turn the splines to the slots on the same side, as 3 3, and the saw will cut the desired angle. Other angles are cut in a similar manner.

I claim as new and of my invention—

1. The saw-guide B, provided with arms B' B', adapted to receive and hold the saw, substantially as described.

2. The rotating index-plate C, provided with a slot or slots internally, to hold or carry the saw-guide, and with a notch or notches externally, to permit its being set and held in place by the clamp E, substantially as described.

3. The combination of the index-plate C, provided with one or more slots, 1, 2, 3, &c., on its internal surface, and the saw-guide B, provided with one or more corresponding splines, *a a*, substantially as described.

4. A saw-guide holder, D D, pivoted at a point below the saw-guide, substantially as described.

5. In combination with a saw-guide, B, and its holder D D, the link F, substantially as described.

6. In combination with the holder D D and screw T, the saw-guide B, provided with an annular shoulder, *s s*, adapted to strike against the screw-head T, substantially as described.

7. The combination of the saw-guide B, the plate A, and gage-irons G or H, substantially as described.

8. The combination of the saw-guide B, index-plate C, the holder X, cap X', and adjustable clamp E, substantially as described.

9. The index-plate C, in combination with the saw-guide B, the latter provided with splines or angles *a a*, and a cylindrical portion below the splines, to enable it to be raised in the index-plate until the splines are withdrawn from the latter, and to enable it to be rotated to a new position in the index-plate, substantially as described.

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Witnesses:
ALFRED K. GARLAND,
RUFUS NORMAN.