

2 Sheets--Sheet 1.

J. RICHARDS & L. H. BERRY.

Tenoning Machines.

No. 143,532.

Patented Oct. 7, 1873.

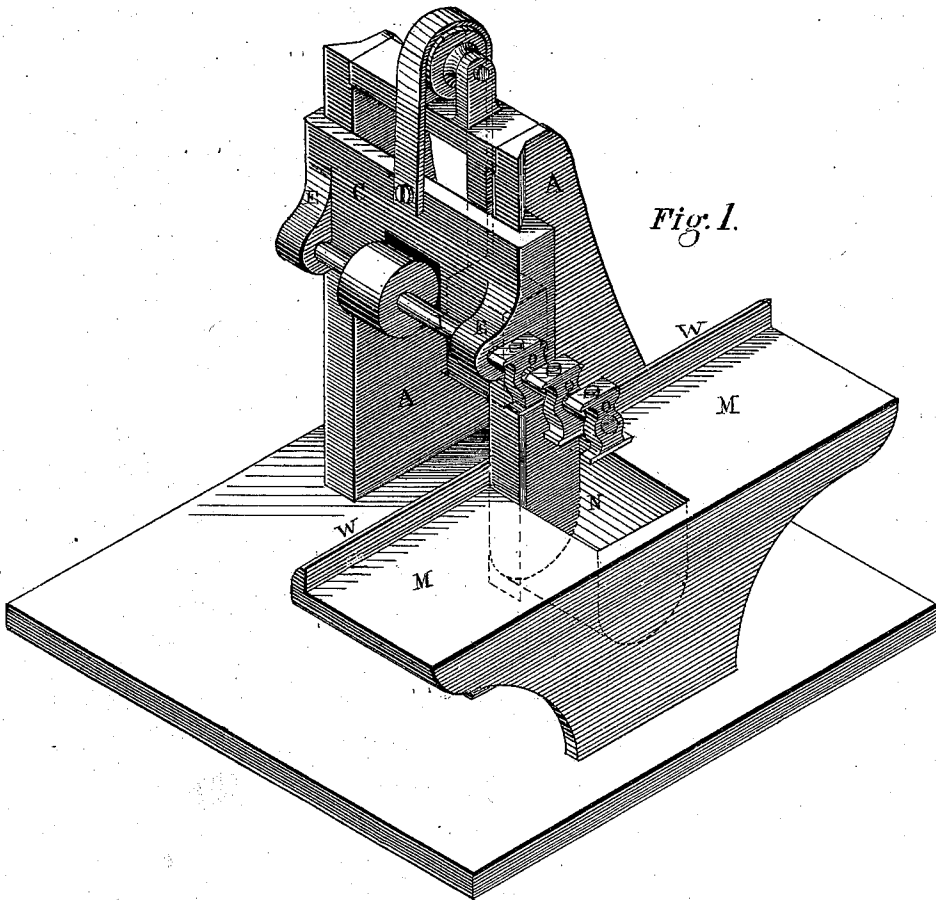


Fig. 1.

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W. E. Lendon
Wm. S. Kelley

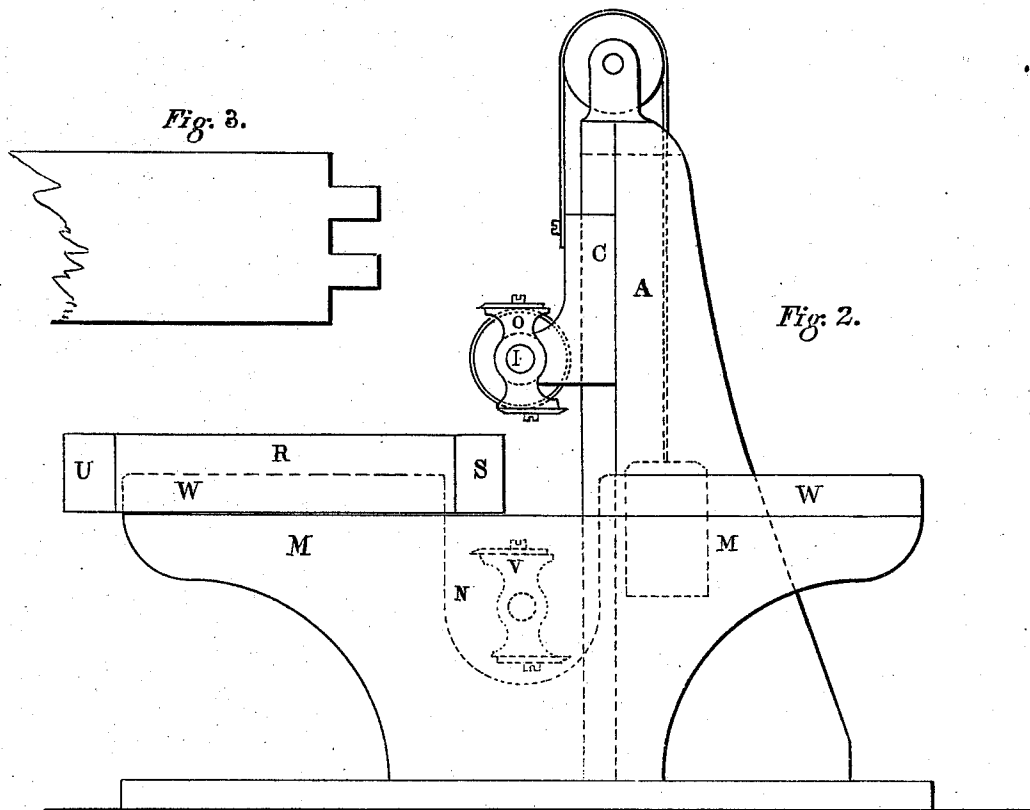
Inventor

John Richards
Lucien L. Berry

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Witnesses

W. E. London
Wm. S. Kelley

Inventors

John Richards
Lucien H. Berry

UNITED STATES PATENT OFFICE.

JOHN RICHARDS AND LUCIEN H. BERRY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN TENONING-MACHINES.

Specification forming part of Letters Patent No. **143,532**, dated October 7, 1873; application filed September 24, 1873.

To all whom it may concern:

Be it known that we, JOHN RICHARDS and LUCIEN H. BERRY, of the city and county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Tenoning-Machines for forming tenons in wood-work; and declare the following, with the drawings accompanying, to be a true and full specification of the same.

The nature of this invention consists in certain improvements in machines to tenon wood, wherein the cutters, in addition to a rotary or cutting motion, have also a traversing movement, so that the lumber to be acted upon can remain stationary while the cutting is performed; and consists in arranging the supporting-table of such machines in two sections, one on each side of the cutters, with a recess or space between, so that the cutter-heads may pass entirely below the surface of the table, and form tenons at their upward as well as their downward movement. The object of this invention is fourfold: First, to save the time and labor hitherto required in returning the cutters to their first position after each operation. Second, to avoid dulling the cutters by reason of their contact with the wood during the return or upward movement. Third, to avoid the necessity of reversing the lumber, or turning it end for end, when there are tenons to be formed at each end of the piece. Fourthly, by cutting the tenons on both ends of the lumber without reversing, it enables the position of the tenons to be gaged from the same side of the piece, insuring accuracy in the work that is unattainable when the lumber is reversed to form tenons at each end.

The letters of reference indicate corresponding parts in the different figures and on the two sheets of drawings.

Figure 1, Sheet 1, is a perspective elevation, showing the general arrangement of the cutter-heads and the manner of constructing the support for the lumber in two sections, or with a recess into which the cutter-heads may pass after the downward stroke. Fig. 2, Sheet 2, is a true front elevation of Fig. 1, showing how the lumber is placed on the table and passes over the cutter-heads after one end has been acted upon. Fig. 3 is a top view

of a piece of lumber with tenons as formed by the machine.

A is a strong frame, on the front of which slides a saddle or spindle frame, C. Bearings E E are formed on the frame C to receive the cutter-spindle I. M M is a table or support for the lumber, constructed either in two independent parts, or, as shown in the drawings, with a recess, N, deep enough to allow the cutter-heads O to pass entirely below the top of the table M M and clear of the lumber, so that, after operating first on the end at S, the piece can be moved along on the top of the table M M, and over the cutters O, and the tenons at U be formed by the upward movement of the frame C and the cutters O. The frame C is counterweighted, as shown, and may be moved up and down either by power or by hand, as the nature of the work may require.

In operating the machine, when tenons are to be formed on both ends of the piece, frame C and cutters O are raised to the position shown, and the lumber placed, as seen at R, on either side of the cutters. The frame C and cutters O are then moved downward, cutting away the wood between the tenons, and to the position shown in dotted lines at V. The lumber is then moved along on the top of the table M M, and over the cutters at V, until it reaches a proper position to form the tenons at U. The frame C and cutters O are then raised again to their position, as seen, forming tenons U on the end of the lumber, and completing the operation of tenoning both ends of the piece without changing its position otherwise than to slide it along on the table M M.

In this way, as before explained, the lumber is not reversed end for end, but passes the cutters continually in one direction, and the same side of the piece rests against the fence W W while forming the tenons at either end.

In machines of this class, as hitherto constructed, the lumber had to be reversed or changed to form tenons on the second end, thereby presenting a different side of the piece to the fence W W, from which the positions of the tenons are gaged.

By operating in this manner the lumber is

required to be precisely parallel to insure accuracy of the tenons; besides, the inconvenience of reversing the pieces, especially those that are long, was very great.

We claim—

The tenoning-machine herein shown and described, when constructed, arranged, and op-

erating in the manner and for the purposes substantially as specified.

JOHN RICHARDS. [L. S.]
LUCIEN H. BERRY. [L. S.]

Witnesses:

FRANK G. TAITE,
ROBT. McCURDY.