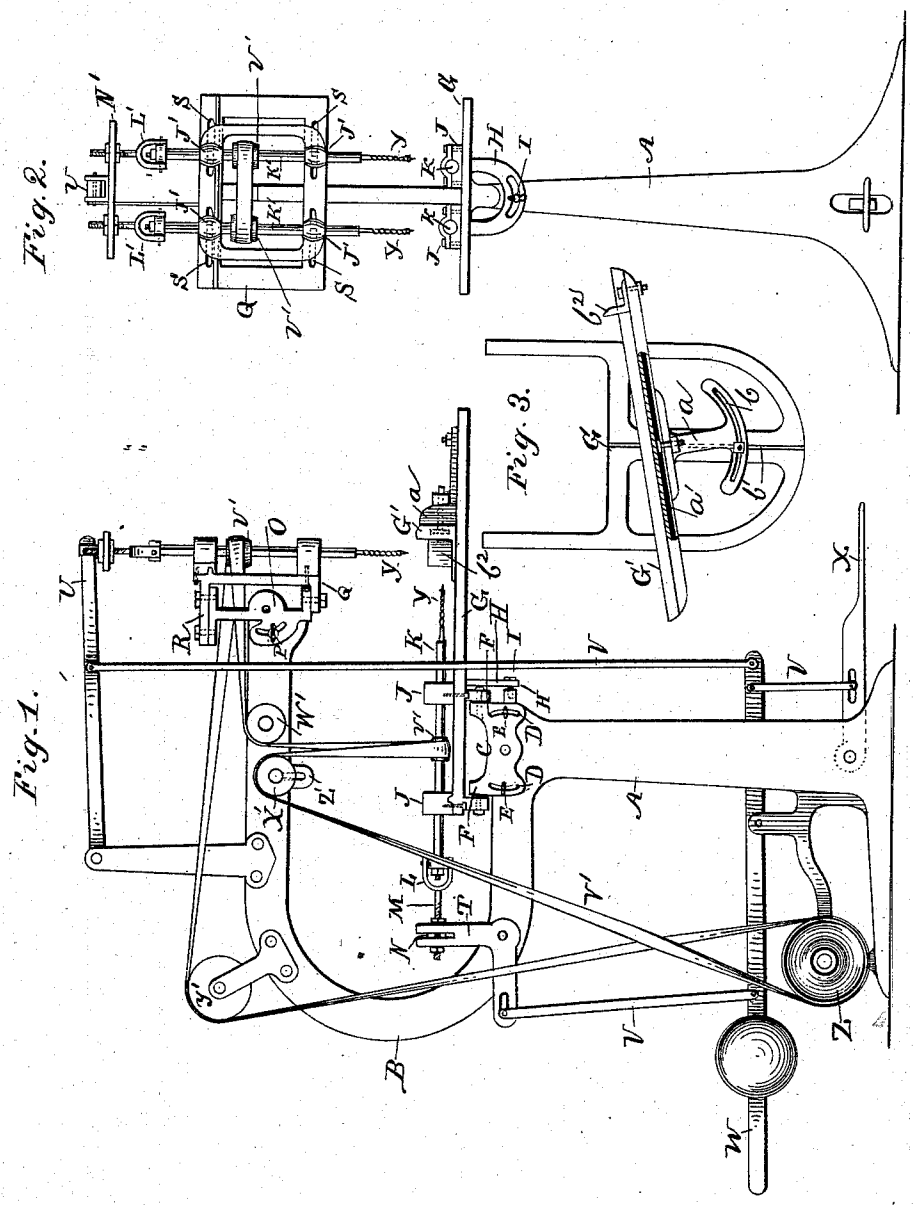
(No Model.)

# J. M. NASH.

## WOOD BORING MACHINE.

No. 274,020. Patented Mar. 13, 1883.



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# UNITED STATES PATENT OFFICE.

JOHN M. NASH, OF HUDSON, WISCONSIN.

## WOOD-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 274,020, dated March 13, 1883.

Application filed July 21, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN MILTON NASH, of Hudson, in the county of St. Croix and State of Wisconsin, have invented a new and useful Improvement in Wood-Boring Machines, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, forming part of this specification.

The object of this invention is to provide a machine for boring by a single operation a number of holes at different angles to each other, such as are required in chair-legs, &c.

In the drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a front view of a part of the same, and Fig. 3 is a plan view of the table.

A represents a cast pedestal or support for the machine, having at its upper end a curved arm, B, extending upward and over the same.

To the upper end of the pedestal is pivoted a frame, C, having slots D near its ends, and thumb-screws E, passing through the slots into the pedestal, by which the inclination of said frame may be adjusted as desired. This frame is provided with ears F, to which is pivoted a horizontal table, G, and the table is provided with a semicircular plate, H, having a segmental slot and a thumb-screw, I, passing through the slot into said frame, by which the lateral inclination of the table may be adjusted as desired.

To the upper surface of the table are secured bearings J for the mandrels K, which bearings are adjustably connected to the table by means of bolts passing through slots which are to be formed in the table, as hereinafter described, whereby the mandrels may be adjusted toward or from each other. The rear ends of the mandrels are connected to yokes L, which are provided with rods M, passing through slots which are to be formed in a bar, N, and secured loosely therein by nuts on opposite sides of the said bar, in order that said yokes may be moved toward or from each other in the adjustment of the mandrels.

To the upper end of the arm B is pivoted a frame, C', having a segmental slot through which a thumb-screw, P, passes into said arm to hold said frame at any desired angle of inclination.

To ears on the frame O is pivoted a bracket, Q, in such manner that it may be oscillated laterally—that is, in a direction at right angles to that in which the frame O is oscillated—and which is provided with a projection, R, overlapping the top of frame O, which is to be provided with a slot and screw for adjusting it in any desired position. This bracket is provided with slots S, as shown in Fig. 2, by means of which bearings J' are adjustably secured thereto in precisely the manner the bearings J are secured to the table G. In these bearings are supported mandrels K', having yokes L', connected to a bar, N', corresponding in every particular with the bar N. With this construction the mandrels are adapted to be adjusted toward or from each other just as the mandrels K. The bar N is supported in a slotted angle-lever, T, and the bar N' is connected to a lever, U, while the levers T and U are connected by rods V to a third lever, W, which is weighted at one end and connected at the other with a foot-lever, X. The levers T and X are slotted, as shown, in order that the connecting-rods V may be adjusted to vary the stroke of said levers.

The mandrels, which are provided with boring-bits Y, are geared with the drive-wheel Z by means of pulleys U' on the mandrels and the belt V', passing over the pulleys W' X' Y'. The pulley X' is supported in a slotted bearing, Z', whereby the tension of the belt may be kept at the required degree. With this construction the two sets of boring-bits may be adjusted at various angles to each other, and the bits of each set may be adjusted laterally with respect to each other, while they always remain parallel. By means of a single belt the two sets of bits are rotated, and they are forced into or withdrawn from the wood that is being bored by the treadle X and the weighted lever W, respectively.

The table G is provided with an angular cross-bar, G', which is adjustably screwed to a bracket, *a*, by means of a longitudinal slot, *a'*, in the bar and a bolt having its head adapted to move in the slot, and the bracket is connected to the table by means of a segmental slot, *b*, in the bracket and a bolt having its head adapted to move in a slot, *b'*, in the table. $b^2$ is a stop. With this construction the piece

of wood to be bored may be held in the angular bar G′ at any desired angle of inclination.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A wood-boring machine having two sets of boring-bits, which are supported normally at right angles to each other and combined with means for adjusting each set at an angle with a vertical or a horizontal plane, and means for adjusting the bits of each set to or from each other, substantially as shown and described.

2. The combination, with a suitable support and a series of mandrels, of a frame pivoted to the support and adapted to be secured at any desired inclination with respect thereto, a second part pivoted to the frame, with its pivots at right angles to the pivot of the frame, and adapted to be secured at any desired inclination with respect to said frame, and a series of bearings for the mandrels, supported upon the said second part and adapted to be adjusted toward and from each other, substantially as shown and described.

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Witnesses:
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