H. H. Nichols,

Bending Wood.

No. 95,037. Patented Sept. 21, 1869.

Fig. 1.

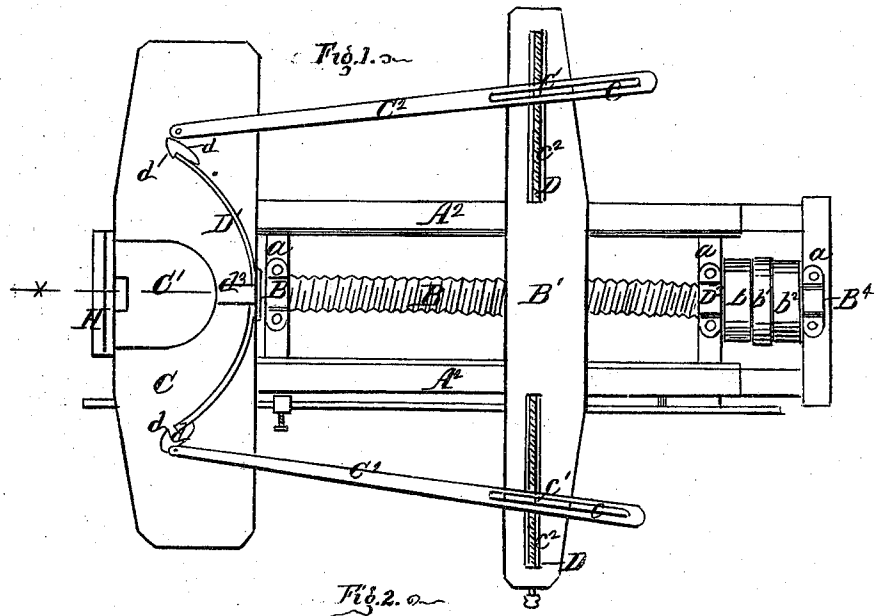


Fig. 2.

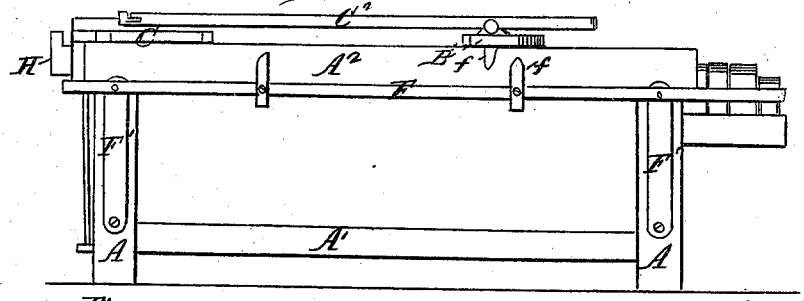


Fig. 3.

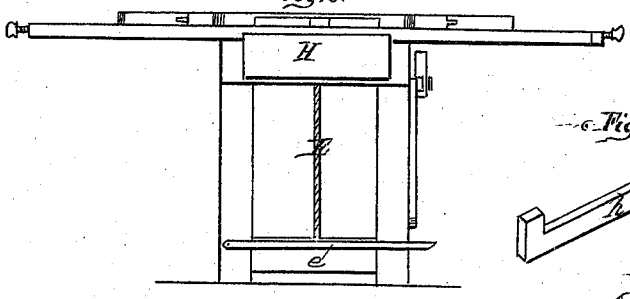


Fig. 4.

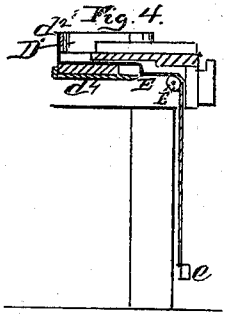


Fig. 5.

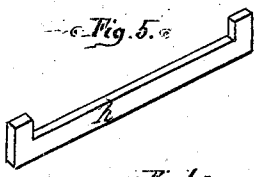


Fig. 6.

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Letters Patent No. 95,037, *dated September* 21, 1869.

IMPROVEMENT IN MACHINE FOR BENDING WOOD.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY H. NICHOLS, of Keeseville, in the county of Essex, and State of New York, have invented a new and improved Machine for Bending Wood; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to certain improvements in machines for bending wood, whereby the operation is in a measure automatically regulated, and the machine adapted to bending different forms, as will hereinafter more fully appear.

In the drawings—

Figure 1 is a plan view of my invention.

Figure 2, a side elevation.

Figure 3, an end elevation.

Figure 4, a sectional view, through line *x x*, fig. 1.

Figure 5, a perspective view of the strip *h*.

Figure 6, a perspective view of one of the heads *d*.

The frame-work of my invention consists of the uprights A, longitudinal beams A^1 A^2, and cross-beams *a*.

Between the beams A^2 is the longitudinal screw-shaft B, which passes through a fixed nut on the under side of the transverse carriage B^1, which moves in suitable ways between the beams A^2.

The screw-shaft B revolves in bearings B^2, B^3, and B^4.

Between the bearings B^3 and B^4 are the pulleys *b* b^1 b^2, of which the pulley b^1 is fixed on the shaft B, the others being loose or idle.

The shaft B is operated by means of a belt around the pulley b^1. One of the pulleys *b* or b^2 has also a belt running in an opposite direction to that on the pulley b^1.

C represents a transverse platform, on which is the form C^1, which may be removed at will, and a different one substituted.

C^2 C^2 represent arms or connecting-rods, which are provided, at their rear ends, with the longitudinal slots *c*, through which pass the set-screws c^1, into nuts on the screw-shafts c^2, which work in the slots D of the carriage B^1.

D′ represents a strip of elastic metal, the ends of which are attached to heads *d*, which latter are pivoted to the forward ends of the arms C^2, and are provided with the projections d^1.

The strip D′ is attached, at its centre, to an upright piece, d^2, of metal, which passes through a slot, d^3, in the platform C, and is then bent at right angles, and passes forward under the platform, and is again bent downward, and attached to the rope E, which passes over the pulley E′, and thence downward to the treadle *e*.

The piece d^2 is drawn back to place by the elastic spring d^4.

F represents a longitudinal rod, which is pivoted to the swinging arms F′, and is provided, at suitable points, with the adjustable projections *f f*.

f′ is a projection on the under side of the carriage B^1, which, as the latter moves along its course, comes in contact with the projections *f*, and moves the rod F forward or backward.

At the rear end of the rod F is a projection, which, when the rod is moved in either direction, removes the belts from one pulley to another.

H represents a vertical cross-head, which slides up and down in dovetailed grooves, and is provided, at its upper edge, with a groove, in which is placed a strip of wood or metal, *h*, of the form shown in fig. 5, which confines the edge of the wood which is bent.

The cross-head H is provided with springs, by which it is forced up to a level with the platform C.

The operation of my invention is as follows:

The screw-shaft is revolved by the pulley b^1 in a direction to propel the carriage toward the platform C. The wood to be bent is then placed between the strip D′ and the form, the ends being confined by the projections d^1, and as the carriage moves the arms C^2 force the heads *d* forward, and cause the strip D′ to assume a semicircular form, or one corresponding to the form C^1, or otherwise.

The wood is held firmly by depressing the treadle, which causes the strip D′ to press the wood closely against the form.

When the wood has been bent to the desired form, and the heads *d* project over the edge of the platform, the strip *h* is pushed up by the cross-head H, and the projections on its ends placed over the ends of the wood, thereby holding the same when the form is removed and the carriage withdrawn.

The form is held by a projection, I, on the platform.

When the carriage has advanced sufficiently far, the projection *f′* strikes the forward projection *f*, thereby causing the rod F to move forward, and the projection on the rear end of the rod to move the belt on the pulley b^1 to the pulley *b*, and from the pulley b^2 to the pulley b^1.

It will be remembered that the latter belt revolves in an opposite direction from the former, and therefore causes the pulley b^1 to revolve in an opposite direction, and reverses the motion of the carriage, which runs backward until its projection reaches the rear projection *f*, when the belts are moved back, and the carriage moves forward.

The arms C^2 may be regulated for bending different forms, by turning the screw-shafts c^2, thereby changing the point on which they bear.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the bent piece d^2, spring d^4, rope E, and treadle e, as and for the purpose described.

2. The combination of the parts described, consisting of the beams A A^1, carriage B^1, screw-shaft B, pulleys b b^1 b^2, platform C, arms C^2, strip D', form C^1, and cross-head H, arranged and operated substantially as described.

This specification signed and witnessed, this 2d day of February, 1869.

HENRY H. NICHOLS.

Witnesses:
A. S. BABBIT,
W. LANSING.