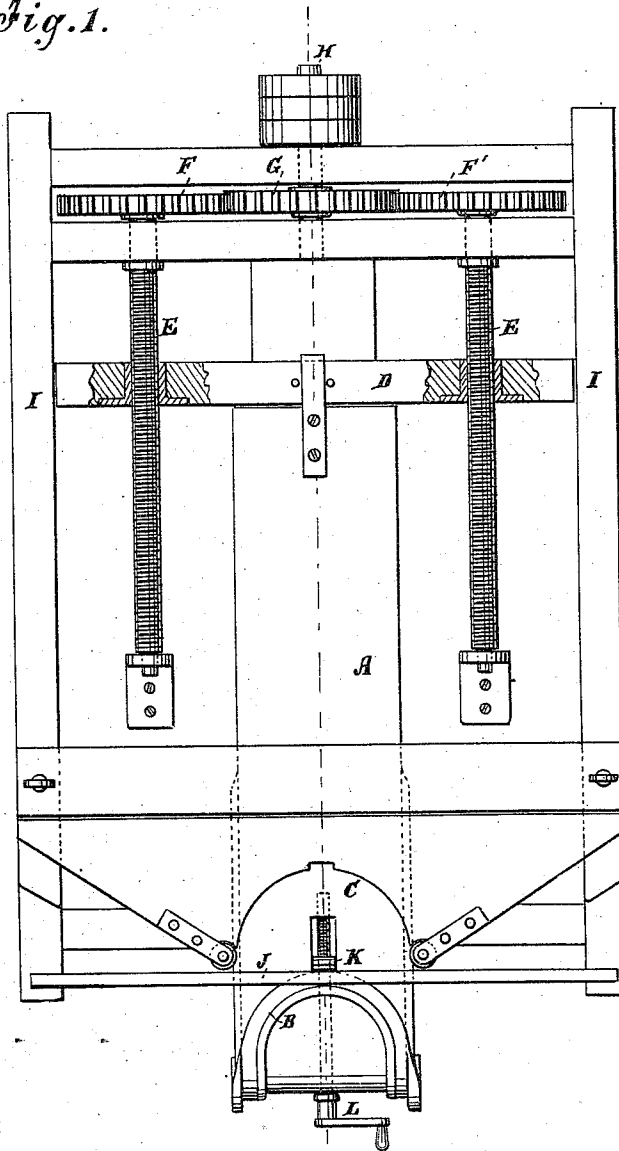


A. F. MARSHALL.
Wood Bending-Machines.

No. 154,880.

Patented Sept. 8, 1874.

Fig. 1.



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Fig. 2.

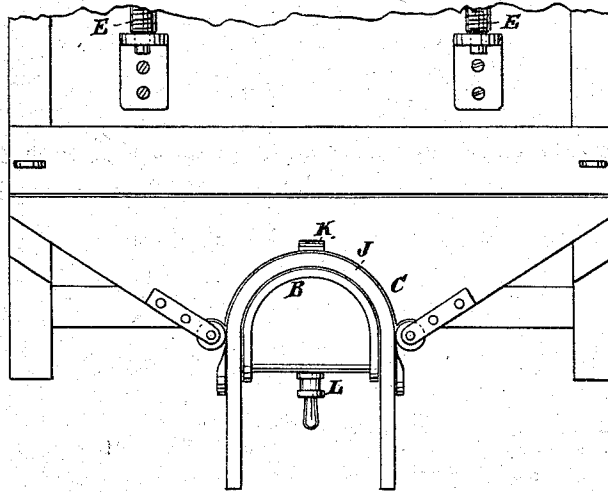


Fig. 3.

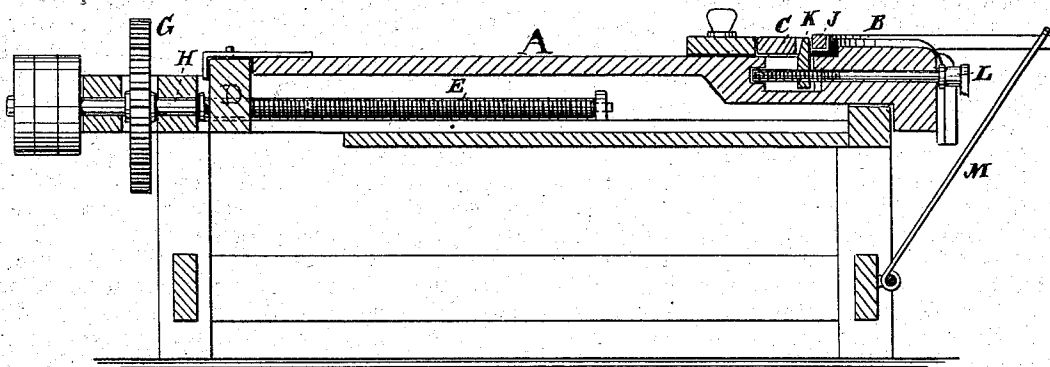
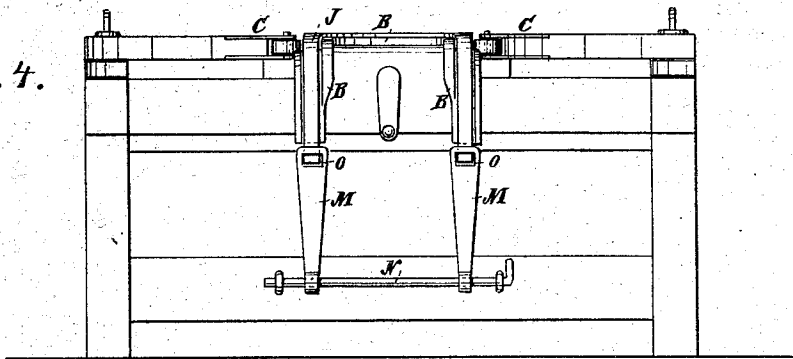


Fig. 4.



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UNITED STATES PATENT OFFICE.

AUGUSTUS F. MARSHALL, OF BLACK RIVER, NEW YORK.

IMPROVEMENT IN WOOD-BENDING MACHINES.

Specification forming part of Letters Patent No. **154,880**, dated September 8, 1874; application filed June 27, 1874.

To all whom it may concern:

Be it known that I, AUGUSTUS F. MARSHALL, of Black River, in the county of Jefferson and State of New York, have invented a new and Improved Wood-Bending Machine, of which the following is a specification:

My invention relates to machines for bending wood for chair-backs and the like by the use of a movable cross-head and screw for working it, as described in the patent granted to me September 5, 1871, No. 118,736, and is an improvement thereon; and consists, in the first place, of the combination of two screws with the cross-head for working it, in a manner calculated to avoid the cramping and binding of it with the ways, as when only one screw is used, the screws being geared with a counter-shaft when they are both turned alike, so that one will not overrun the other.

The invention also consists of such arrangement of the stirrups, the former, its carrier, and the die in which the back is bent, that the arms are bent while the former is being moved out of the die for bending the back to adjust it for receiving the next bar to be bent.

Figure 1 is a plan view of my improved machine, with some parts of the cross-head sectioned, showing the position of the former and its carrier for putting in the bar to be bent. Fig. 2 is a plan of a portion of the machine, showing the positions when the back is bent. Fig. 3 is a longitudinal sectional elevation of the machine, showing the positions represented in Fig. 2; and Fig. 4 is an end elevation, showing the positions when the back and arms are bent.

Similar letters of reference indicate corresponding parts.

A is a slide, which carries the metallic former B, on which the bar is to be bent for the back and arms, to move it into and out of the die C, in which the back is bent, said slide being connected to a cross-head, D, to be worked by power, which I now propose to apply by means of two screws, E, arranged one near each end, and geared alike, by wheels F, F', and G, to the driving-shaft H, so that they are compelled to move the cross-head exactly alike at both ends, and thus avoid all binding

and cramping in the ways I, to which it is subject when worked by one screw, as in my former patent. The bar J to be bent, being placed between the crown of the arch of the former B and the front of the die C, and clamped to the former by the jaw K and screw L, is bent for the back, as represented in Fig. 2, by forcing the former back into the die.

This mode of bending the back, by forcing the former B into the die C, is now in use, and I do not claim it; but the subsequent operation of bending the bar for the arms, which has up to this time been done by hand with levers, I propose to do by power, and I also propose to do it while the former-carrier is being moved back to the place for applying another bar, so as to economize time.

To this end I attach stirrups M to the frame of the machine, or to any suitable support, so that before moving the bars out of the die they can be attached to the projecting ends of the bar, as shown in Fig. 3, so as to hold and bend them down against the former when it is moved back with the slide. These stirrups consist of a couple of flat bars of metal pivoted to the machine at N, and having a slot, O, at the upper end, to slip on the end of the bar, in the manner indicated; but I do not limit myself to any particular form or arrangement of them.

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

1. The combination of the die C for bending the back, the slide A for carrying the bending-former, and the stirrups M, whereby the arms are bent while the slide is being readjusted for the next bar, substantially as specified.

2. The combination of the follower A for working the former-carrying slide of a bending-machine, geared with the driving-shaft H by screws E E near each end, and by gear-wheels F G, all arranged substantially as specified.

AUGUSTUS F. MARSHALL.

Witnesses:

T. B. MOSHER,

ALEX. F. ROBERTS.