

(No Model.)

G. F. ALMY.
Wood Bending Machine.

No. 234,935.

Patented Nov. 30, 1880.

Fig. 1.

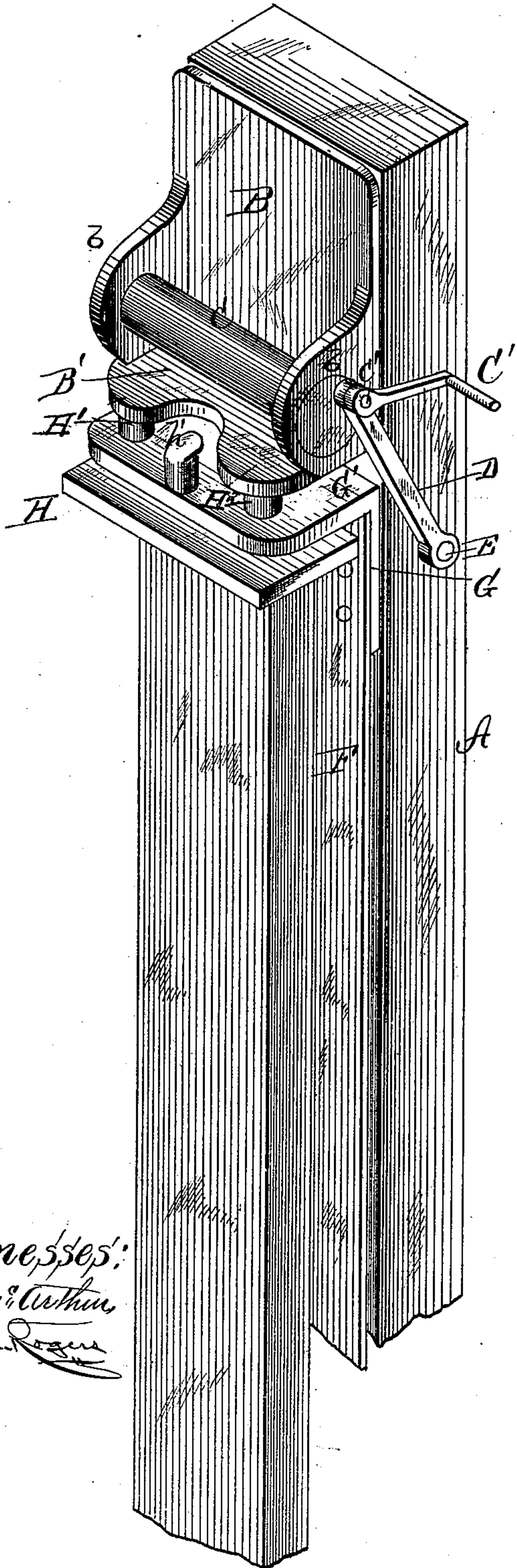
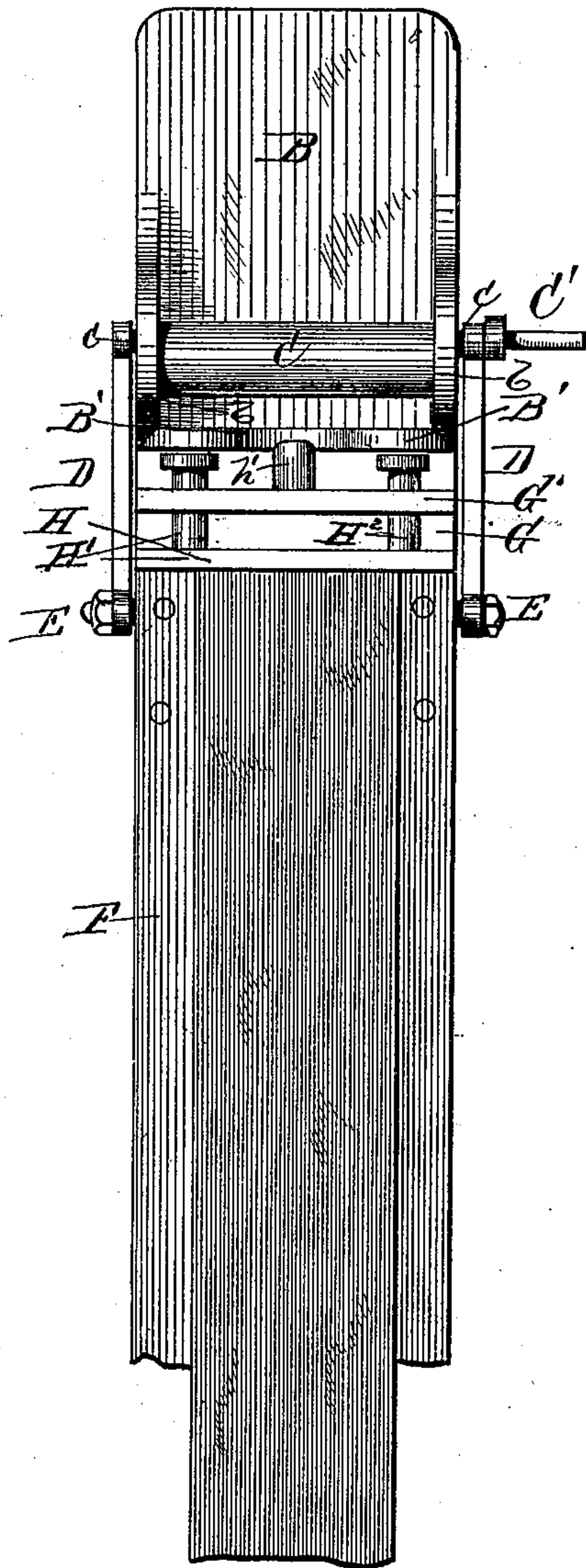


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE F. ALMY, OF DELPHOS, OHIO.

WOOD-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 234,935, dated November 30, 1880.

Application filed March 11, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. ALMY, of Delphos, in the county of Allen and State of Ohio, have invented certain new and useful
5 Improvements in Wood-Bending Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked
10 thereon, which form part of this specification.

My invention relates particularly to the end-compression mechanism in lever machines in which are employed metal straps beneath the timber blanks to be bent, and forms above
15 them, the bands being provided with adjustable abutments to control the end expansion of the wood while being bent.

The object of the first part of my invention is to provide an improved mechanism for compressing the end of the blank while it is being bent, which is simple in construction, may be easily operated, and will exert a direct and powerful pressure upon the end of the timber by mechanism that may be quickly operated
20 and will not get out of order; and the improvement consists in connecting to the end of the bending-lever a sliding head operated upon by an eccentric-shaft that passes through the sliding head, and is connected at its ends
25 with the bending-lever by links, the eccentric or cam shaft being provided with a crank-handle and having suitable bearings in the sliding head, so that as the crank is turned the sliding head will be moved backward and forward upon the lever, either to compress the
30 blank or release its hold upon it.

Heretofore it has been difficult to connect the ends of the metal straps with the compression mechanism without rendering the straps liable to kink while the blank receives the end-pressure, and finally become broken in a short time; and the object of the next part of my invention is to provide suitable means for overcoming this difficulty, which
35 improvement consists in securing a fixed abutment or guide-plate to the band, with which is connected a movable abutment-plate to press against the end of the timber blank to receive its pressure from the sliding head and compression mechanism, as will hereinafter appear.
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The accompanying drawings show a single lever with the above-described mechanism attached, and, for the convenience of this exhibit, showing only the strap permanently connected to the lever at one end and the timber blank held in place by a socket. A rubber block in the bottom of the socket serves to more fully show the action of the end-compression mechanism.
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It will be understood that the strap is not in practice secured to the lever, and the socket and rubber are only used for illustration.
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In the drawings, Figure 1 is a perspective view of a bending-lever provided with the above-described mechanism, and Fig. 2 a side elevation of the same with the ends broken away.
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The mechanism herein shown is preferably connected with a machine of the type shown in the patent of John Morris, dated March 11, 1856, and reissued May 27, 1862, in which two bending-levers are employed, which are pivoted at their inner ends to the main frame, and are connected at their outer ends by ropes or chains operated upon by a winding-drum in such manner that the outer ends of the lever are drawn together. The timber to be bent into shape being secured at its ends to the outer ends of the levers, the timber will be bent into shape to conform with a form or mold-block around which the timber is bent.
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In the drawings only one of the bending-levers A is shown, which is pivoted at its inner end to the frame, as above described, and at its outer end is provided with a sliding head, B, connected with the lever by an eccentric-shaft, C, the ends of which are coupled with the end of the lever by links D D, secured to eccentric-pins *c c'* of the shaft C, and to the lever by a bolt, E. A crank-handle, C', secured to the eccentric-pin *c'* serves to turn the shaft. The sliding head B is provided with side lugs, *b b*, which form bearings for the eccentric-shaft, so that as the crank-handle and shaft are turned the head B will be caused to slide back and forth a limited distance upon the lever.
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The metal band or strap F rests upon the lever in the usual way, and has its ends permanently secured to a stationary abutment-
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block, G, formed of a knee-plate, one side, G, of which is riveted to the strap, and the other side, G', is turned up at right angles thereto and forms the stationary abutment and guide-plate.

A movable abutment, H, arranged parallel with the plate G' and at right angles to the strap, is provided with bearing and guide pins H' H² for the sliding pressure-head B to bear against. The pins H' H² pass through the plate G' of the fixed abutment, and the movable abutment is thereby held in place relatively to the strap and timber to be bent, but is allowed to move freely in the direction of the length of the lever to compress the timber, as will hereinafter appear.

The sliding head B is provided at its inner end with an upwardly-projecting face-plate, B', arranged parallel with the abutments G' H, which bears against the ends of the pins H' H², and through the instrumentality of the eccentric-links and crank-handle force them, together with the movable abutment, with great pressure against the end of the timber or blank to be bent.

In operation the blank to be bent into the required shape, after being properly steamed, is placed upon the metal strip F, that rests upon the upper side of the lever, so that the blank will fit snugly between the movable abutments G' when said abutments are placed at the outer end of their stroke. The pressure is brought to bear against the end of the blanks when the bending first begins, so that the fibers of the wood are compressed longitudinally to compensate for the strain brought upon them during the operation of bending, which would otherwise distend the fibers of the wood, and thereby breaking or weakening the timber at such point.

The stationary abutment guides and supports the movable abutment so that it will not become disconnected therefrom. The movable abutments admit of ample movement to compress the timber without acting upon the metal strip to buckle and kink it in the slightest degree, which would cause them to break

in a short time, causing considerable delay and expense.

The operation of wood-bending machines provided with end-compression mechanism is too well known to require a further description here.

It is obvious that changes may be made in the mode of coupling the movable abutment with the stationary abutment without departing from the spirit of my invention.

The fixed abutment is provided with a hooked pin, h', which affords means for connecting the ends of the straps and timbers by suitable loops passing over the former in a well-known manner.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, in a wood-bending machine, of a stationary block secured to the end of a metal strap with a loose sliding abutment having guide-pins H' H² and suitable mechanism for imparting pressure to said pins, and adapted, when relieved of this pressure, to be thrown back by the pressure of the timber being bent, substantially as herein set forth.

2. The combination, in a wood-bending machine, of lever A with sliding head B, having side lugs, b b, eccentric-shaft C, journaled in said lugs, and links D D, connecting lever A with shaft C by means of eccentric-pins c c', all constructed and arranged to operate substantially as and for the purposes set forth.

3. In a wood-bending machine, the sliding head B, provided with face-plate B', lugs b b, and eccentric-shaft C, in combination with the movable abutment H, stationary abutment-block G, pins H' H²; attached to block H and passing through block G, all constructed and arranged to operate substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEO. F. ALMY.

Witnesses:

B. J. BROTHERTON,
W. T. DOLBEY.