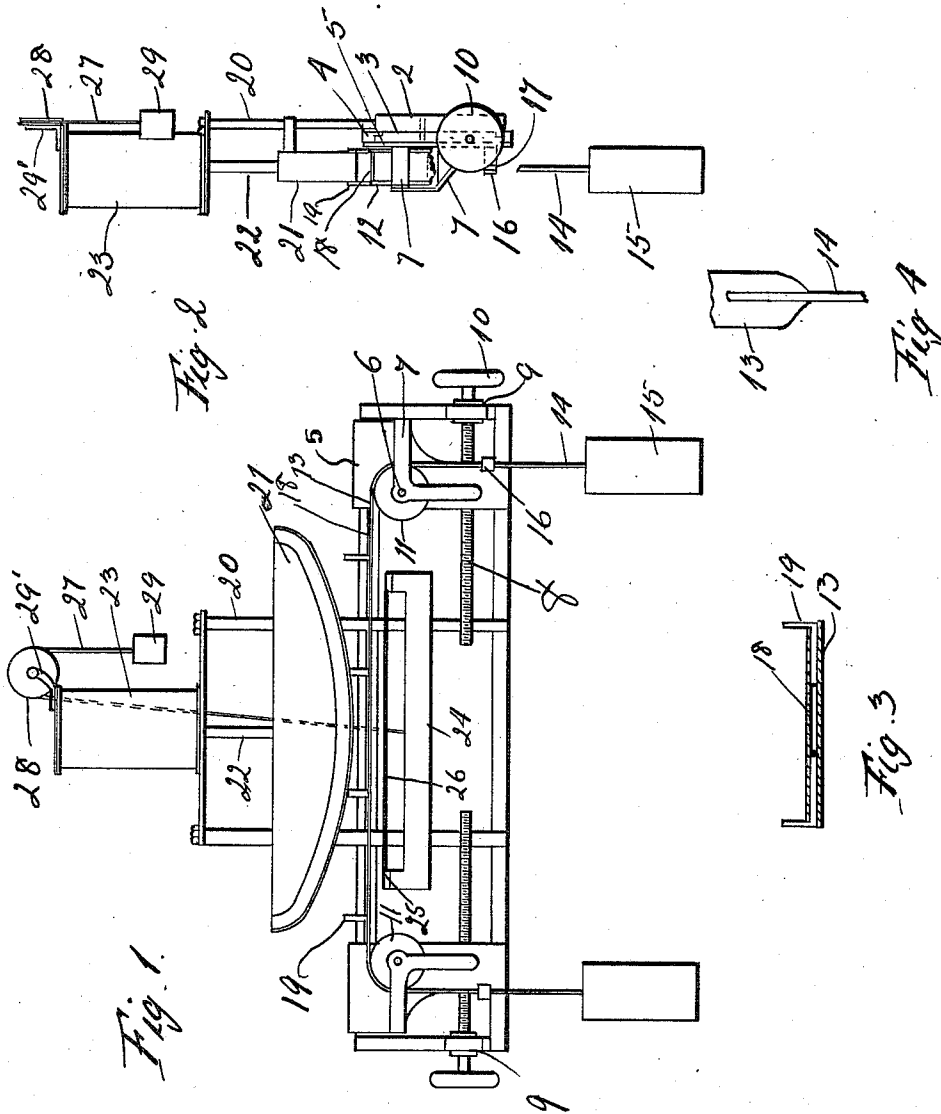


J. W. HILGER.
WOOD BENDING MACHINE.
APPLICATION FILED MAY 31, 1911.

1,019,472.

Patented Mar. 5, 1912.



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JACOB W. HILGER, OF PHILADELPHIA, PENNSYLVANIA.

WOOD-BENDING MACHINE.

1,019,472.

Specification of Letters Patent.

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Application filed May 31, 1911. Serial No. 630,358.

To all whom it may concern:

Be it known that I, JACOB W. HILGER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Wood-Bending Machines, of which the following is a specification.

My invention relates to new and useful improvements in wood bending machines, and has for its object to construct a device of this character whereby pieces of wood which have first been steamed, may be bent to shape without breaking or cracking, and is especially adapted for use in bending locomotive cab timbers, wheel reams, parts of automobile bodies and the like.

In practice I have found that a piece of timber, although having a good many knots therein and weak spots, can be bent to form without splitting or breaking and can be done as readily and quickly as though the piece were sorted and picked for the occasion.

In bending locomotive cab timbers, a great number are broken in the operation, because of the weak spots, but by the use of my improvement one man can place the timber in position and then by suitable power such as compressed air, the form may be forced against the timber, causing said timber to form to the shape of the form in use.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by numeral to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a front elevation of my improved wood bending machine. Fig. 2, an end view thereof, a portion of the belt being removed to clearly illustrate the construction. Fig. 3, a transverse sectional view of the belt; and Fig. 4, a face view of one end of the belt.

In carrying out my invention as here em-

bodied, 2 represents a frame which is fastened to some object such as a wall or a building, and this frame carries a grooved track 3 on which slide the tracks 4 of the brackets 5, each of said brackets having a shaft 6 journaled therein, the outer end of which is held in position by suitable braces 7. Through each of the brackets is threaded a screw rod 8 journaled at 9 in the frame and provided with a hand wheel 10, whereby said screw rod may be revolved to slide the brackets 5 to any desired adjustment. On the shafts 6 are mounted the pulleys 11 provided with flanges 12, and over the flanges runs a belt 13, preferably of canvas, and to each end of this belt is fastened a cord or cable 14 which carries a weight 15. These weights must be of the same size and weight so that the one balances the other, thus preventing either one from dropping below the other. The cables 14 pass through guides 16 provided with notches 17, so that should one cable break, the opposite weight will not fall to the floor nor will the belt be pulled entirely from the pulleys since the end of the belt will come in contact with the guide and because of this greater width will stop at this point. On top of the canvas belt between the pulleys, is mounted a metallic belt 18, preferably of steel and between the canvas and steel belts are placed a number of L-shaped guides 19, the outer ends of which extend upward to prevent the displacement of the timber being operated upon.

20 denotes a pair of uprights carried by the frame, and on which is slidably mounted the form 21 which may be of any shape and size, not greater than the greatest adjustment of the brackets 5. The form is preferably operated by a piston rod 22 which is connected thereto and which works within a cylinder 23 for receiving the hydraulic pressure.

The construction above described will bend light timbers or those which are ordinarily used, but by tests I have found that extra heavy timber requires an extra bracing at the center of the mold and adjacent thereto, and in order to provide this brace I mount a frame 24 upon the uprights 20 and this frame is preferably constructed of angle irons joined together by suitable strips. On

the arms 25 of the frame is mounted a spring 26 which will conform with the shape of the mold when said mold is forced downward for bending the timber.

5 The spring 26 is normally held in contact with the mold or timber which is being bent, through the medium of a cable 27, one end of which is attached to the frame, it then running over a groove pulley 28 and having
10 a weight 29 secured to its opposite end. The groove pulley 28 is here shown as being fastened to a bracket 29' mounted upon the cylinder 23, but in practice this wheel would ordinarily be secured to a bracket fastened
15 on the wall above the machine.

The operation of the device is as follows:—The steamed timber is placed upon the steel belt 18 between the L-shaped guides 19, then by turning the pressure into the cylinder 23 the piston rod 22 will force the form 21 downward against the timber and against the action of the weights 15, causing the belt to force the timber to conform with the shape of the form 21. Since the belt snugs
25 closely to the form, the timber is prevented from leaving the form at any point, and therefore will not crack or break. In actual tests I have found that the weights necessary for bending timber are relatively light
30 compared to the usual power necessary for bending large timbers, and I have found that although said timbers had weak spots or knots they did not break while being bent to shape, therefore very little waste is occasioned and the expense in bending timbers
35 is greatly reduced.

Of course I do not wish to be limited to the exact details of construction as here shown, as these may be varied within the
40 limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful, is—

1. In combination, a frame, horizontally
45 sliding brackets carried by said frame, manually operated means carried by the frame for causing the sliding of said brackets, wheels journaled on said brackets, a belt running over said wheels, weights carried
50 by the ends of said belt, and a form slidably mounted above the belt.

2. A wood bending machine consisting of a frame, horizontally sliding brackets adjustably mounted upon said frame, manually
55 operated means carried by the frame for causing sliding of said brackets, a shaft mounted in each of said brackets, a groove pulley journaled upon each of said shafts a belt passing over said pulleys, a weight carried by each end of said belt, a metallic belt
60 mounted upon the first named belt, and a form slidably mounted above the belts.

3. In a belt for a wood bending machine of the class described, a canvas belt, a steel
65 belt secured to a portion of the canvas belt,

and L-shaped guides mounted between the belts and extending beyond the outer face of the metallic belt.

4. In a wood bending machine, the combination of a frame, a pair of brackets slidably mounted thereon, braces secured to said
70 brackets, shafts, the ends thereof being mounted in the brackets and braces, a pulley provided with flanges mounted upon each of said shafts, a belt carrying guides passing over the pulleys, weights carried by the
75 ends of said belt, and a form slidably mounted above the belt.

5. In a wood bending machine, the combination of a frame, a pair of brackets slidably mounted thereon, braces secured to said
80 brackets, shafts, the ends thereof being mounted in the brackets and braces, a pulley provided with flanges mounted upon each of said shafts, screw rods journaled in the frame and passing through the brackets for
85 adjusting said brackets, a canvas belt passing over the pulleys, a cable fastened to each end of the belt, weights secured to the ends of the cables, notched guides carried by the
90 brackets through which the cables pass, a metallic belt mounted upon the canvas belt, L-shaped guides mounted between the canvas belt and the metallic belt, the ends of said guides extending beyond the outer face
95 of the metallic belt, and a form slidably mounted above the belts.

6. In a wood bending machine, the combination of a frame, a pair of brackets slidably mounted thereon, braces secured to said
100 brackets, shafts, the ends thereof being mounted in the brackets and braces, a pulley provided with flanges mounted upon each of said shafts, screw rods journaled in the frame and passing through the brackets for
105 adjusting said brackets, a canvas belt passing over the pulleys, a cable fastened to each end of the belt, weights secured to the ends of the cables, notched guides carried by the brackets through which the cables pass, a
110 metallic belt mounted upon the canvas belt, L-shaped guides mounted between the canvas belt and the metallic belt, the ends of said guides extending beyond the outer face of the metallic belt, uprights secured to the
115 frame, a form slidably mounted on said uprights co-acting with the belts, and means for operating said form.

7. In a wood bending machine, the combination of a frame, a pair of brackets slidably mounted thereon, braces secured to said
120 brackets, shafts, the ends thereof being mounted in the brackets and braces, a pulley provided with flanges mounted upon each of said shafts, a belt carrying guides passing over the pulleys, weights carried by the
125 ends of said belt, a pair of uprights secured to the frame, a form slidably mounted thereon, means for forcing said form against the pressure of the weights transmitted through
130

the belt, a frame slidably mounted upon the
uprights, a spring carried thereby, a groove
pulley, a cable running over said pulley and
secured to the slidable frame, and a weight
5 attached to said cable whereby the spring
will be drawn against the belt.

In testimony whereof, I have hereunto

affixed my signature in the presence of two
subscribing witnesses.

JACOB W. HILGER.

Witnesses:

M. E. YOST,

M. P. WILLIAMSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."