Sept. 2, 1924. 1,507,368

C. W. ELLIOTT

WOOD BENDING MACHINE

Original Filed Aug. 22, 1921

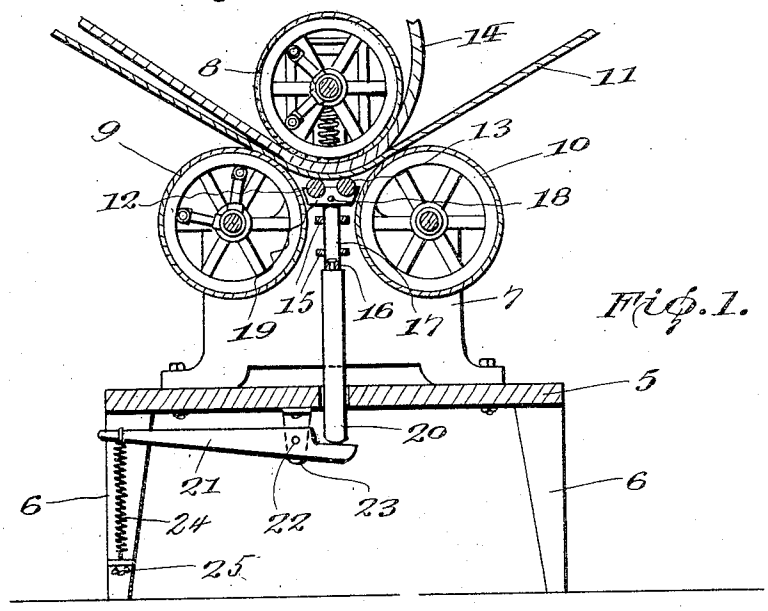
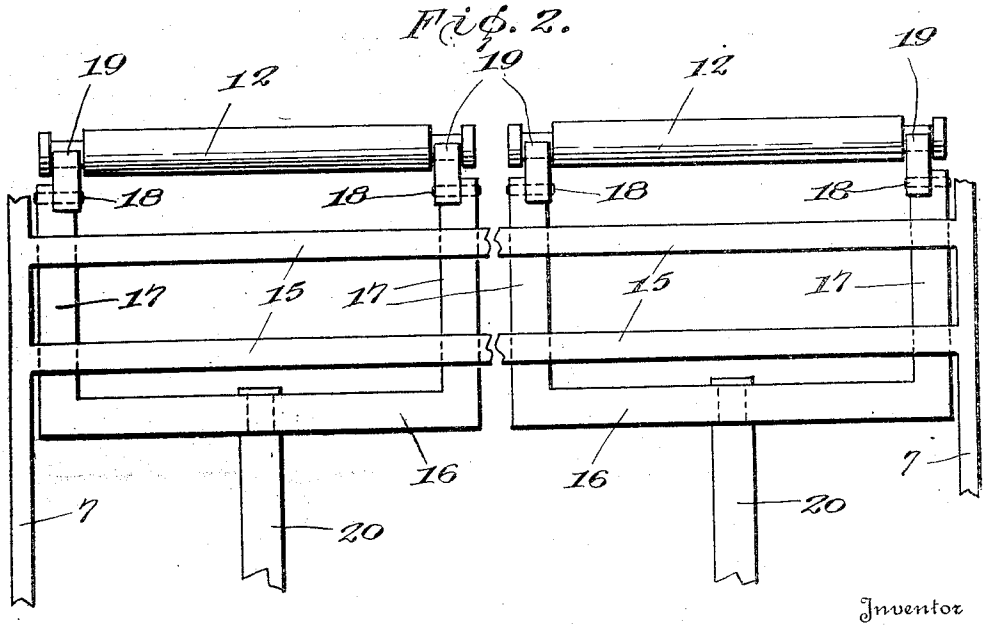


Fig. 1.

Fig. 2.



Inventor

Chas. W. Elliott

By Maya A. Schmidt

Attorney

Patented Sept. 2, 1924. 1,507,368

UNITED STATES PATENT OFFICE.

CHARLES W. ELLIOTT, OF NEW ALBANY, INDIANA.

WOOD-BENDING MACHINE.

Application filed August 22, 1921, Serial No. 494,206. Renewed November 2, 1923.

To all whom it may concern:

Be it known that I, CHARLES W. ELLIOTT, a citizen of the United States, residing at New Albany, in the county of Floyd and State of Indiana, have invented certain new and useful Improvements in Wood-Bending Machines, of which the following is a specification.

This invention relates to machines for bending wooden strips such as are used in the manufacture of the orchestra and band drum shells, and more particularly to improvements in the machine disclosed in my Patent No. 960,525, dated June 7, 1910.

The invention has for its object to provide the machine referred to with certain devices to be hereinafter described whereby it is made more efficient and also rendered capable of operating on thicker or heavier strips.

In order that the invention may be better understood, reference is had to the accompanying drawing forming a part of this specification, and in said drawing:

Figure 1 is a transverse vertical section of the machine, and Fig. 2 is a front elevation of certain presser rollers.

Referring specifically to the drawing, 5 denotes the table or stand of the machine, the same being provided with legs 6, and supporting a pair of laterally spaced bearing standards 7 in which are journaled the three rolls 8, 9 and 10 arranged in triangular relation, the roll 8 being at the top and the rolls 9 and 10 at the bottom and on opposite sides of the top roll. In order to prevent the wood from cracking and splitting, or forming irregular curves on account of variations of strength while it is being bent under the roll 8, there is placed a strip 11 of resilient material under said roll, under the wood and on the outer or convex side of the curve in the latter. The parts thus far described are fully disclosed in my previous Patent No. 960,525, and hence a further description thereof is not necessary.

The improvement which is the subject matter of the present application for patent consists of a pair of presser rollers 12 and 13 set parallel to the roll 8 between the rolls 9 and 10, and located beneath the strip 11 and on opposite sides and close to the vertical center line of the roll 8. The work 14 being operated on passes between the strip 11 and the roll 8, and the rollers 12 and 13 firmly press the strip 11 against the work just before and after the bending point, which latter coincides with the vertical center line of the roll 8. In practice, this has been found desirable, especially if thick sheets of wood are to be bent, and it is also not necessary to moisten the wood while bending the same.

The rollers 12 and 13 are not as long as the roll 8, and hence a series of two or more of such rollers are provided so that they may extend throughout the entire length of the roll 8. Fig. 2 clearly illustrates the manner in which the presser rollers 12 and 13 are supported. The bearing standards 7 are connected by a pair of laterally spaced cross bars 15 between which is slidably mounted a frame consisting of a bottom 16 and upstanding side pieces 17. To the upper ends of the side pieces 17 are pivoted, as shown at 18, bearing members 19 which carry the rollers 12 and 13. To the bottom frame member 16 is connected a depending plunger 20 against the lower end of which bears the inner end of a spring-pressed lever 21 which is fulcrumed, as shown at 22, to a bracket 23 on the bottom of the table 5. To the outer end of the lever 21 is connected one end of a coiled spring 24 suitably anchored at its opposite end, and being here provided with a means for adjusting its tension, such means being a wing nut 25. It will be understood that any other spring adjustment means may be provided.

It will be evident from the foregoing that the rollers 12 and 13 are firmly pressed against the strip 11, and the pressure can be readily regulated by the wing nut 25. Each set of rollers 12 and 13 is provided with a support and presser spring as hereinbefore described. By providing several sets of independently adjustable presser rollers 12 and 13, several wooden strips of different thickness can be bent in one operation of the machine, and the machine can also operate on strips having a width which is greater than one set of presser rollers. The pivoted bearings 19 of the rollers permit the latter to readily adapt themselves to apply an even pressure throughout the entire width of the work regardless of any variation in the thickness of the work.

During the bending operation, the outer or convex surface of the work is subjected to considerable expansion, and by means of

the presser rollers 12 and 13, this surface is held firm and snug so as not to allow any cross-checking or disarrangement of the fibers or grain of the wood during the bending process, and while the curve is being formed the heavy pressure serves to assist in the expansion of the outer surface of the strip being bent. It is also not necessary to moisten the strip, and the present machine can successfully bend dry wood. The presser rollers also firmly press the wooden strips against the roll 8, which latter feeds the strips during the bending process, with the result that a steady and positive feed is obtained, and there is no slippage or stoppage. This positive feed assures a true circle or curvature of the wood.

The machine is well adapted for bending wooden parts such as are used in the construction of table rims, bed bows, chair tops, panels, curved drawer fronts, etc.

The preferred embodiment of the invention has been disclosed, but it will be understood that various changes and modifications may be made without a departure from the spirit and scope of the invention as claimed hereinafter. The means for operating the rolls 8, 9 and 10 have not been described as they form no part of the present invention, and may be the same as in my Patent 960,525 hereinbefore referred to.

I claim:

1. In a wood bending machine, a series of bending rolls arranged in triangular relation, a resilient strip between said rolls, between which strip and one of the rolls the work travels, and presser rollers engaging the strip on opposite sides of the vertical center line of the last-mentioned roll and located between the other ones of the rolls.

2. In a wood bending machine, a series of bending rolls arranged in triangular relation, a resilient strip between said rolls, between which strip and one of the rolls the work travels, and a plurality of pairs of presser rollers, the respective members of which engage the strip on opposite sides of the vertical center line of the last-mentioned roll.

3. In a wood bending machine, a series of bending rolls arranged in triangular relation, a resilient strip between said rolls, between which strip and one of the rolls the work travels, a plurality of pairs of presser rollers, the respective members of which engage the strip on opposite sides of the vertical center line of the last-mentioned roll, a slidable support for each pair of rollers, and means associated with each support for moving the same in a direction to obtain a pressure of its rollers against the strip.

4. In a wood bending machine, a series of bending rolls arranged in triangular relation, a resilient strip between said rolls, between which strip and one of the rolls the work travels, presser rollers engaging the strip on opposite sides of the vertical center line of the last-mentioned roll and located between the other ones of the rolls, a slidable support, pivoted bearings for the presser rollers carried by the support, and means for moving the support in a direction to obtain a pressure of the rollers against the strip.

In testimony whereof I affix my signature.

CHARLES W. ELLIOTT.