

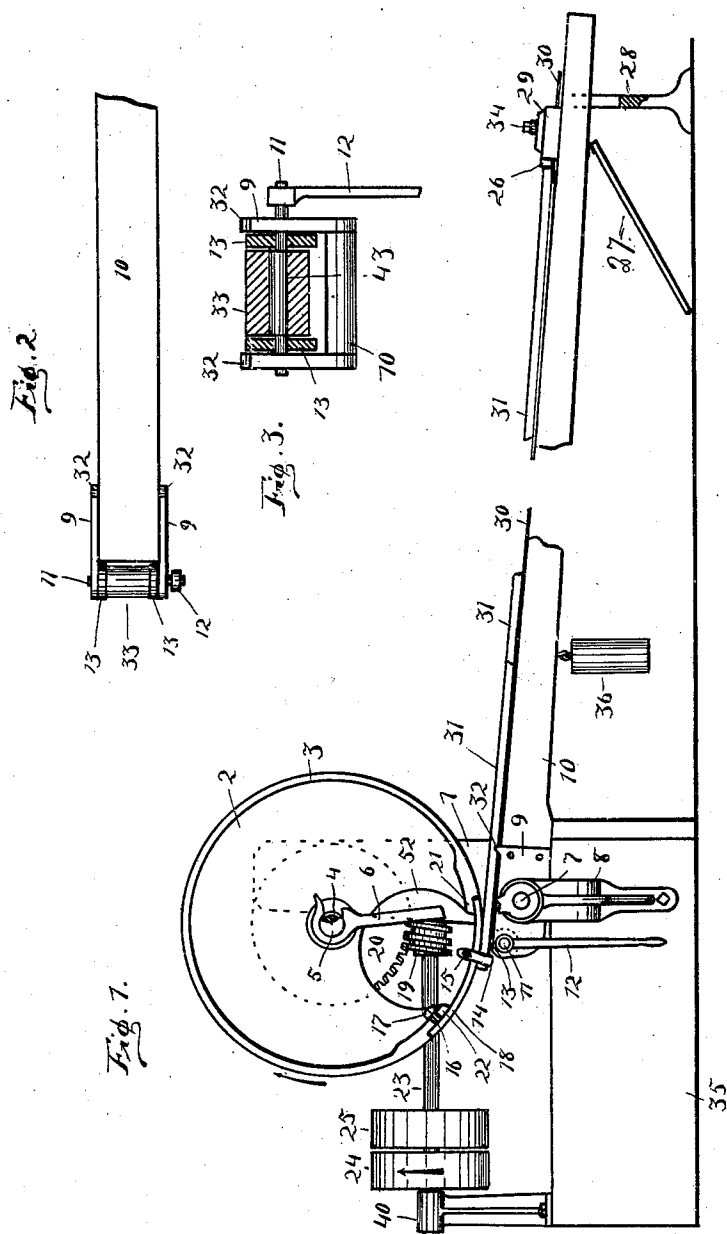
(No Model.)

3 Sheets—Sheet 1.

L. RASTETTER.
WOOD RIM BENDING MACHINE.

No. 565,923.

Patented Aug. 18, 1896.



WITNESSES:

Louis Rastetter

INVENTOR

James M. Hamilton
Augustus Bourne.

BY *A. G. Burns*

ATTORNEY.

(No Model.)

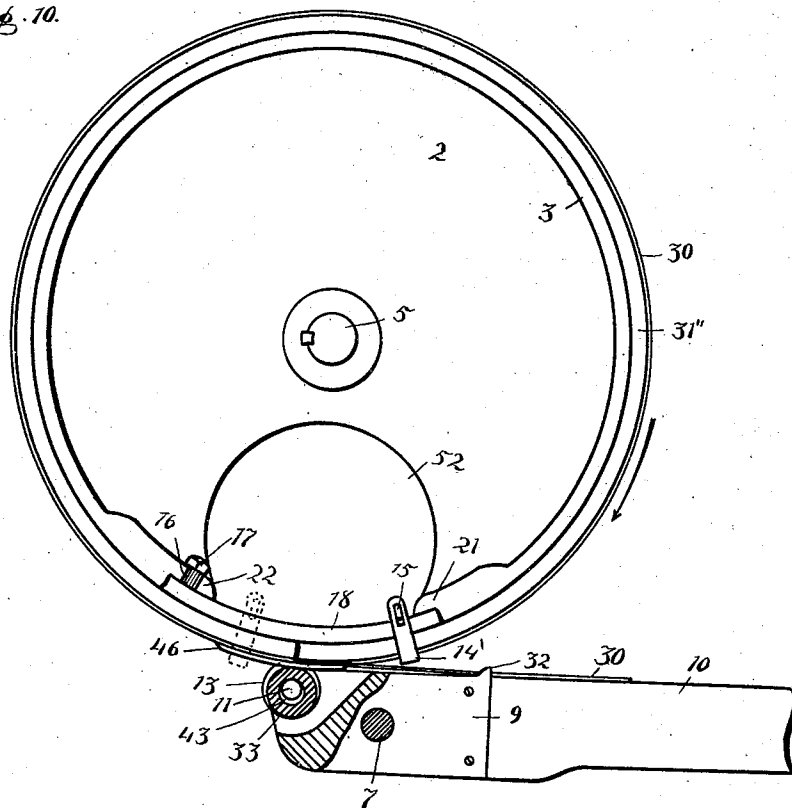
3 Sheets—Sheet 3.

L. RASTETTER.
WOOD RIM BENDING MACHINE.

No. 565,923.

Patented Aug. 18, 1896.

Fig. 10.



WITNESSES:

James M. Hamilton
Augustus Bonner

Louis Rastetter INVENTOR

BY *W. G. Burns*

ATTORNEY.

UNITED STATES PATENT OFFICE.

LOUIS RASTETTER, OF FORT WAYNE, INDIANA.

WOOD-RIM-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,923, dated August 18, 1896.

Application filed September 13, 1895. Serial No. 562,385. (No model.)

To all whom it may concern:

Be it known that I, LOUIS RASTETTER, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Wood-Rim-Bending Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in wood-rim-bending machines in which a revolving form operates in conjunction with an upset strap, friction-rollers, and a weighted lever; and the objects of my improvement are, first, to facilitate securing the meeting or abutting ends of the bent strips; second, to afford facilities for bending a plurality of strips simultaneously; third, to provide a form which may be used continuously without removing it from its position on the machine. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the strips in position preparatory to being bent; Fig. 2, a plan of the forward end of the lever; Fig. 3, an end view of Fig. 2, with the rollers in vertical section; Fig. 4, a plan of the frame, form, and driving-gear; Fig. 5, a view showing the bent strips, clamp, &c., as they appear when removed from the form; Fig. 6, an enlarged detailed view in cross-section on the line X X of Fig. 5; Fig. 7, a side view of the temporary retaining-clamp; Fig. 8, a longitudinal section of the upset clamp secured to the upset strap; Fig. 9, a rear view of Fig. 8, and Fig. 10 a detailed view showing the manner of inserting the clamping-plate.

Similar figures of reference refer to similar parts throughout the several views.

The vertical post 1, supporting the bearings 41 and 42, the rectangular frame 35, supporting the bearing 40 and bracket 8, constitute the frame of the machine. In the bearing 42 is journaled the shaft 5, upon which is rigidly mounted the worm-wheel 20 at one

end and the revolving circular form 2 near the opposite end, the hub of each registering with the respective ends of the bearing in which the shaft is mounted. Thus, when in motion, the worm-wheel, shaft, and form revolve together and are free from lateral play.

The form 2 is provided with the flange 3, extending around the form to the opposite sides of the opening 52, the ends being thickened to give strength to the lips or extending ledges 21 and 22. These ledges conform with the circumference of a circle of less diameter than that of the flange and form seats for the ends of the curved plate 18, which, when placed in position, rests upon the outer faces of the ledges and conforms with the edges and contour of the flange 3. The ledge 22 is provided with a lateral slot 16, adapted to receive the shank of the bolt or stud 17, which is rigidly secured to the plate 18, and is designed to hold the plate temporarily in position on the form.

In the bracket 8 is mounted the shaft 7, upon which is fulcrumed the lever 10 near its forward end. The plates 9 9, secured to either side of the lever, afford suitable bearings for the shaft 11. The lugs 32 32, integral with the plates, project above the upper face of the lever and form guides for the strips 31 31' and upset strap 30. On the shaft 11, and between the plates 9 9, are loosely mounted the friction-rollers 13 13. The collar 33 is rotatably mounted on the eccentric 43 between the rollers, and when the prominence of the eccentric is turned upward the collar thereon registers with the upper faces of the rollers. Thus the rollers and the collar act as one continuous roller when brought into engagement with the upset strap 30, referred to hereinafter. This collar may be disengaged by throwing the lever or handle 12 upward, which turns the shaft 11 one-half around. The prominence of the eccentric then extends downward and the collar is thereby lowered, leaving the rollers to sustain the pressure on the upset strap and permitting the insertion of the curved clamping-plate 46, referred to hereinafter.

By raising the rear end of the lever 10 the leg 27 hinged thereto assumes a vertical position and forms a rest for the lever when in proper position for inserting or removing the

strips. 28 is a bifurcated post secured to the floor, and is adapted to receive the rear end of the lever 10 when at rest and to prevent it from becoming laterally dislodged.

5 36 is a weight secured to the lever 10 at a sufficient distance to effect proper pressure on the strips between the rollers and form 2.

To aid in resisting the strains brought upon the shafts 5 and 7, I loosely mount the arm 6
10 on the outer end of the shaft 7, and provide a hook or claw at its other extremity for engaging the annular groove 4 near the outer end of the shaft 5. It is adapted to be disengaged therefrom and swung downward, so as not to
15 interfere with the removal of the bent strips or rims 31" from the form 2.

The upset strap 30 is made from a thin sheet of non-corrosive, non-elastic, flexible metal, its length being greater than that of
20 the strips 31 31' to admit of the adjustment of the upset clamp 29. This strap and also the plate 18 are preferably made from non-corrosive material, or are galvanized to prevent the strips from becoming stained by coming
25 into contact with rust or other forms of corrosion.

In Fig. 7 is shown the temporary retaining-clamp. It is used to secure the ends of the strips 31 31' to the removable plate 18 while
30 being bent, and consists of a U-shaped iron 14, having slots or perforations 53 in its upturned ends, into which the wedge 15 is inserted. The clamp 44 is the same in construction as that just described, with the addition
35 of the enlargements or lugs 47. This clamp is used to secure together the plate 18, the meeting ends of the strips, the overlapping ends of the upset strap, and the plate 46 after the strips have been bent and before re-
40 moving them from the form.

The upset clamp 29 (shown in Figs. 8 and 9) is preferably made from metal, and consists of the plate 48, having upturned sides grooved the entire length of their inner faces, and
45 leaving the inwardly-extending ledges 51, with which the projecting edges of the block 49 engage. The upset strap 30 and the plate 26 are inserted between the block 49 and plate 48, and are securely held into place by
50 means of the set-screw 34. The plate 26 has an upturned end, against which the strips 31 31' rest while the latter are being bent.

Motion may be imparted to the shaft 5 by any suitable power-transmitting mechanism.
55 In the drawings I have shown the worm-wheel 20 actuated by the worm 19, which is rigidly mounted on the rotatable driving-shaft 23. This shaft is mounted in the bearings 40, poised on the forward end of the frame 35, and 41 mounted on the side of the
60 post 1. The shaft 23 may be driven by a belt from any suitable source of power, to the tight and loose pulleys 24 and 25, respectively mounted thereon.

65 54 is a shifting-bar loosely mounted in the frame 35, and is provided with pins 37 37' for engaging the belt for the purpose of throw-

ing it from one pulley to the other. The bar is shifted by the hand-lever 38, which is pivotally connected to the bar at their meeting
70 ends, and fulcrumed on the bracket 39. (Shown in Fig. 4.)

In the operation the strips to be bent are preferably rounded on one side, cut to the proper length, and steamed in the usual man-
75 ner. The upset strap is placed lengthwise along the upper face of the lever 10, with its forward end extending over the rollers 13 13. The friction-rollers are lowered by raising the rear end of the lever 10, and the steamed
80 strips are laid upon the upset strap with their rounded sides upward and their forward ends registering with the forward end of the upset strap. The curved plate 18 is placed in position with its ends resting against the
85 ledges 21 and 22, and the shank of the stud 17 inserted in the slot 16. The forward ends of the strips and upset strap are then clamped securely to the plate 18 at or near its middle by means of the temporary retaining-clamp
90 14, as shown in Fig. 1. At the opposite ends of the strips the upset clamp 29 is secured to the upset strap 30, with the upturned portion of the plate 26 resting tightly against the
95 ends of the strips, thus preventing creeping or stretching tendencies of the strips while being bent. As the outside circumferences of the strips are greater than that of the inside, the strips are longitudinally confined
100 to the non-elastic upset strap during the process of bending, and it necessarily follows that the fibers of the wood nearest the inner circumferences of the strips would be
105 upset or crowded together to compensate for this difference, in consequence of the confinement of the strips. The rollers are then brought into contact with the upset strap, the form started in motion in the direction indicated in the drawings, and the strips are bent in conformity with the flange 3. Be-
110 fore the form makes a complete revolution the clamp 14' is secured a short distance back of the clamp 14, after which the upset clamp and clamp 14 are removed, thus permitting the ends of the strips to extend forward over
115 the rollers and register with their opposite ends without being obstructed. At this juncture the movement of the form is stopped, and the collar 33 is disengaged by means of the lever 12 and eccentric 43. The curved clamp-
120 ing-plate 46 is inserted between the rollers 13 13, covering the abutting ends of the strips, and is temporarily secured in place at its outward end by another clamp. (Shown in dotted outline in Fig. 10.) By revolving the
125 form slightly forward the permanent clamp 44 may be placed in position, thus securing the abutting ends of the strips and upset strap 30 between the plates 46 and 18. The other clamps may then be removed and the
130 rollers lowered, the arm 6 disengaged, and the bent strips, together with the upset strap and plates 18 and 46, are slid laterally from the form and placed in the drying-kiln.

The plates 18 and 46, upset strap 30, and clamp 44 are made in multiplicate, so that the operation may be repeated as often as desired.

5 Having described my invention and the manner in which it is used, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wood-rim-bending machine, the combination with a circular revolving form having a removable rim-section, of an upset strap; friction-rollers and a collar rotatably mounted at the end of a weighted lever, and adapted to engage the said upset strap; means for disengaging the said collar independent of the said rollers, for the purpose of inserting the clamping-plate in position for securing the meeting or abutting ends of the bent strips; and suitable mechanism for driving the said form, substantially as shown and described.

2. In a wood-rim-bending machine, the combination with a revolving form having a removable rim-section, of a rotatable shaft having an eccentric near its middle, the said shaft being mounted at the end of a weighted lever; friction-rollers loosely mounted on the said shaft; and a collar loosely mounted on the said eccentric between the said rollers, the said rollers and collar being adapted to engage the material being bent; the said collar being adapted to be disengaged independent of the said rollers by means of the said eccentric substantially as shown and described.

3. In a wood-rim-bending machine, the combination with a circular revolving form having a removable rim-section; of a weighted lever having friction-rollers loosely mounted at its forward end upon a rotatable shaft; an eccentric on the said shaft between the said rollers; a collar loosely mounted on the said eccentric; the said rollers and collar being adapted to engage the material being bent around the said form; the said eccentric being adapted to disengage the said collar independent of the said rollers by means of the said shaft, for the purpose of inserting the clamping-plate; an upset strap and upset

clamp for longitudinally confining the strips; and means for securing the meeting or abutting ends of the bent strips to the said removable rim-section of the form, substantially as shown and described. 50

4. In a wood-rim-bending machine, the combination with a frame supporting a circular revolving form having a removable rim-section; of a weighted lever having friction-rollers and a collar loosely mounted at its forward end, the said lever being adapted to bring the said rollers and collar into engagement with the material being bent around the said form; the guides 23 on the said lever; and the hinged leg for supporting the said lever when the said rollers are disengaged, substantially as shown and described. 55

5. In a wood-rim-bending machine, the combination of the frame, the circular revolving form having the removable plate, the weighted lever fulcrumed near its forward end, the upset strap and upset clamp, the friction-rollers and collar rotatably mounted at the end of the said lever and adapted to engage the upset strap, the eccentric for disengaging the said collar from the upset strap independent of the said rollers for the purpose of inserting the clamping-plate, the temporary and permanent retaining-clamps, and suitable driving mechanism for revolving the said form, substantially as shown and described. 60 65 70 75

6. In a wood-rim-bending machine, the combination of a circular revolving form, an upset strap and upset clamp, friction-rollers, a rotatable collar mounted on an eccentric between the said rollers, and adapted to operate and be disengaged independent of said rollers for the purpose of facilitating the connection of the abutting ends of strips after being bent around the said form, substantially as shown and described. 80 85

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS RASTETTER.

Witnesses:

SAMUEL M. HENCH,
HUGH D. STUDABAKER.