A. Luckhaupt,

Bending Wood.

No. 33,395. Patented Oct. 1, 1861.

Fig. 1

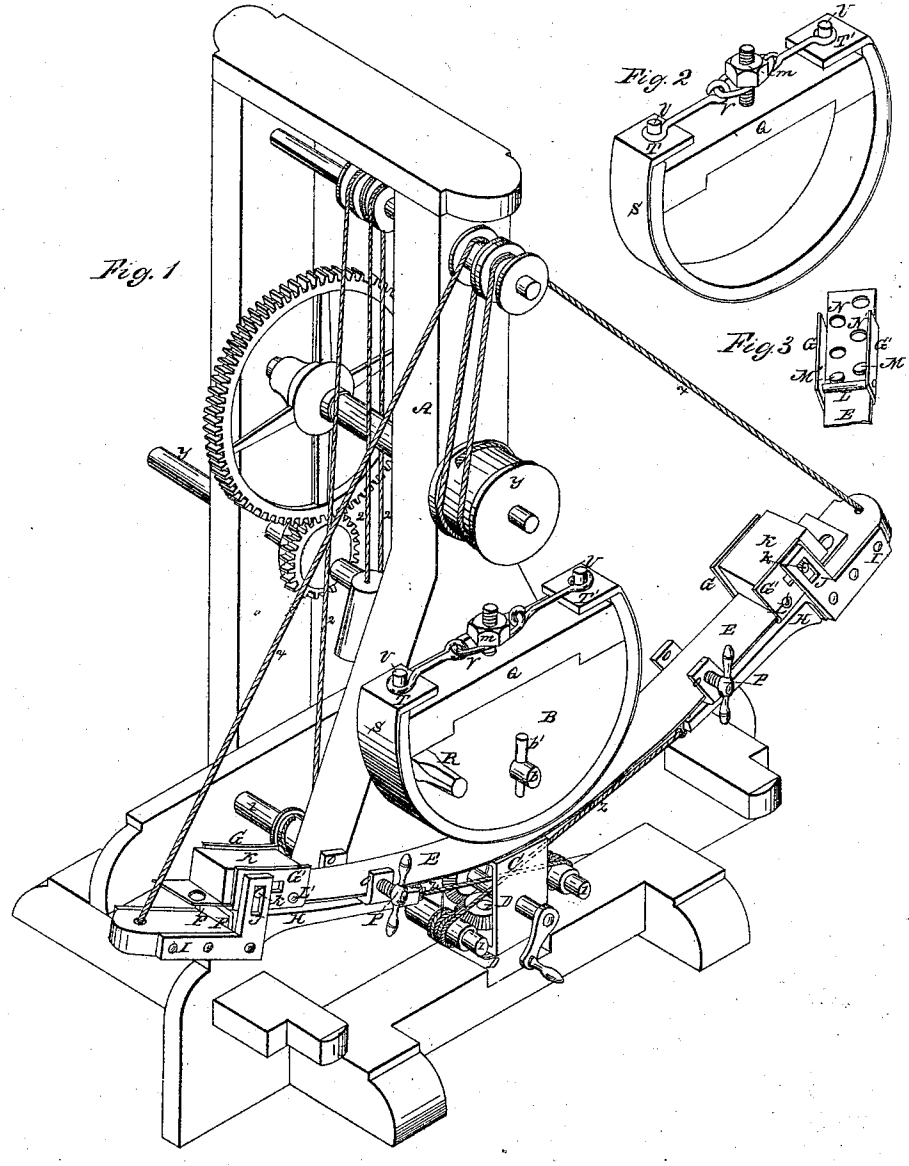

Fig. 2

Fig. 3

Witnesses;
Francis Millard
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per Knight Bros Attys

UNITED STATES PATENT OFFICE.

ADAM LUCKHAUPT, OF COLUMBUS, OHIO.

IMPROVEMENT IN WOOD-BENDING MACHINES.

Specification forming part of Letters Patent No. **33,395**, dated October 1, 1861.

To all whom it may concern:

Be it known that I, ADAM LUCKHAUPT, of Columbus, Franklin county, State of Ohio, have invented new and useful Improvements in Wood-Bending Machinery; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to a provision for bending wheel-fellies, &c., to the precise form desired and with the least possible strain of the material.

Figure 1 is a perspective view of a machine embodying my improvement. Fig. 2 is a detached view of a bent felly with its confining belt and stretcher; and Fig. 3 details hereinafter described.

A post A of the machine-frame has attached firmly to its front or vertical portion a short semi-cylindrical block B, called the "form." The attachment of the form is by pin *b* and key *b'*, so as to enable the substitution of different sizes of forms.

C is a clamp-block, adapted to be elevated or depressed by means of jack D. Fastened at its mid-length to the clamp C is a strap E of wrought-iron or other suitable metal. There are attached to this strap E, near each end, a lower pair of cheeks F F' and an upper pair of cheeks G G'. Hinged to the cheeks F F' is a wooden spring H, projecting inward beneath the strap, and a bell-crank rectangular or L-shaped arm I J, whose longer limb I projects outward beyond the strap, and whose short limb J is bifurcated and projects upward, each portion being slotted to receive pins *k k'*, which project from a block K through slots in the cheeks G G'.

L L' are keys, which being withdrawn the studs M M' on cheeks G G' may be shifted from one to another set of holes N N' (see Fig. 3) for different lengths of stuff. Side clamps composed of cheeks O O' and set-screws P enable the stuff to be secured to its place on the strap and prevent lateral displacement.

Q is a stretcher, its ends forming a continuation of the periphery of the form.

R is a key whose withdrawal enables the removal of the bent felly, with its band and stretcher, from the form.

S is the band or inner strap, having lips T and pins U.

V is a shackle whose hooked extremities are made to engage over the pins U. A screw *m*, which projects from the top of the stretcher Q through the middle link of the shackle V, receives a nut above said shackle, which nut, on being screwed down, acts to tighten and secure the felly and draw its ends together, when by withdrawal of key R it can be removed. (See Fig. 2.)

Cords *x* extend from the extension of long limbs I of arms I J to a suitable windlass Y, and enable the drawing together of the arms, so as to apply the strap closely to the outside of the band and to bend the stuff from its mid-length outward. Other cords Z extend from the inner ends of the wooden springs H and pass around shafts I, to which weighted cords 2, being attached, act to hold the inner ends of the wooden springs firmly against the strap E, so that as the bending of the strap operation advances the wooden spring becomes bent and more and more closely applied to the back of the strap E and hugs the latter closely throughout the entire length of the said spring as the bending reaches completion, so as to effectually prevent the usually great tendency of the stuff to buckle out at the "quarters."

On commencing the bending operation the first action of the L-shaped arms I J is to press the blocks K inward, and by that means to clamp the ends of the stuff securely at the very start, but as the bending approaches completion the usual crippling of the ends of the timber is avoided in consequence of the ability of the blocks K to yield to any undue pressure outward.

I claim as new and of my invention herein—

1. The use of a wood-bending form constructed in two parts, with one or more wedges or keys interposed, for the purpose of loosening from the stationary part of the form the movable part with the bent timber attached, substantially as hereinbefore explained.

2. In combination with a wood-bending strap E, the yielding blocks or abutments K, L-shaped arms I J, and cords *x*, or their equivalents, for the objects set forth.

3. In combination with a wood-bending

strap, the wooden springs H and tension-cords Z, arranged and operating substantially as and for the objects stated.

4. The side clamps O O′ P, applied and operating as set forth.

5. In the described combination with permanent outer strap E and form B, or their equivalents, the detachable inner strap S, stretcher Q, shackle V, and tightening-nut *m* and key R, substantially as and for the objects stated.

In testimony of which invention I hereunto set my hand.

ADAM LUCKHAUPT.

Witnesses:
GEO. H. KNIGHT,
FRANCIS MILLWARD.