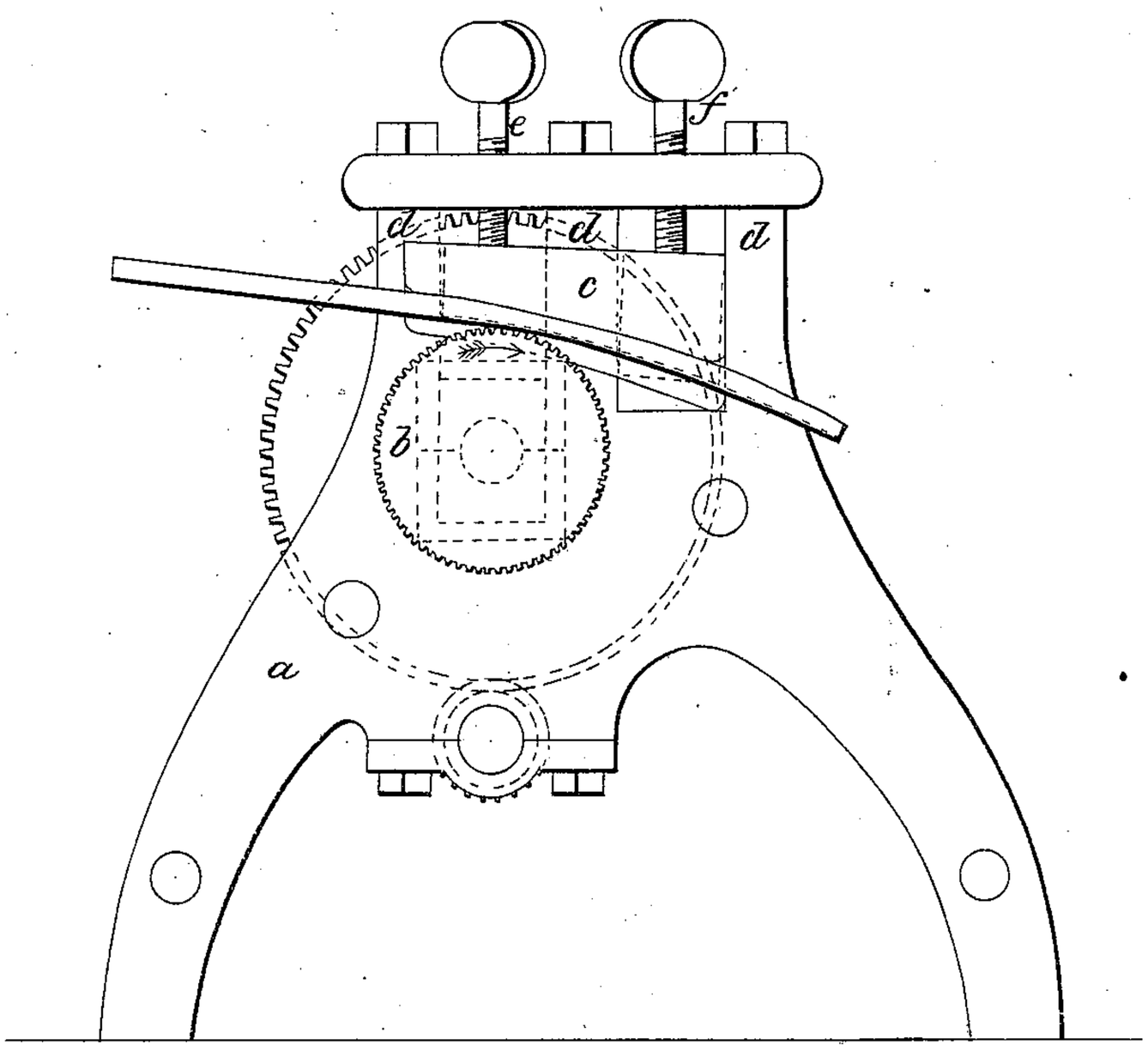
J. Merrill,

Dressing Staves.

No. 83,078. Patented Oct. 13, 1868.



Witnesses:
W. Bowley
Francis Gerdes

Inventor:
Joshua Merrill.

N. PETERS PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

United States Patent Office.

JOSHUA MERRILL, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 83,078, *dated October* 13, 1868.

IMPROVEMENT IN MACHINES FOR BENDING WOOD.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSHUA MERRILL, of Boston, in the county of Suffolk, and State of Massachusetts, have invented an Improved Machine for Bending Barrel-Staves, &c.; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

In machinery devised many years since for bending barrel-staves, a series of pairs of corrugated or tooth-rolls is employed, a curved line drawn between the fellow-rolls of the several pairs at right angles to their axes, (which are parallel,) corresponding, or approximately so, to the longitudinal curve which is to be imparted to the stave in the direction of its length.

Now, in the use of such apparatus, it is found that the strain upon the fibres of the wood, between the pairs of rolls, or at the points where the wood is not directly supported upon either side, is such as to cause the staves to break at these points, and the object of my invention has been to so construct a machine that the wood upon one surface of the stave shall be supported along its whole length, the pressure being applied opposite to such curved surface.

My invention consists in combining, with a toothed feed and crimping-roll, a shaping-bed piece or concave block, between which and the roll the stave-blank is fed, the surface of the shaper next to the roll being curved to correspond with the longitudinal curve of the stave, and the shaper being preferably made adjustable as to distance from the feed-roll, and as to longitudinal inclination.

The drawing represents a central, vertical, and longitudinal section of a machine embodying my invention.

a denotes one of two standards of a frame, which support, in suitable boxes, the journal of a fluted or longitudinally-toothed roll, *b*, the surface of which (in the direction of its length) is curved to or approximately to the transverse curve of a stave.

Above this roll is the shaping and blank-sustaining piece *c*. This shaper extends across the machine between the standards, and has end-projections, which permit the shaper to move vertically between ways or guide-pieces, *d*. The front end of the shaper is directly over the roll *b*, while its rear end extends back beyond the roll, as seen in the drawing, and the under surface of the shaper is curved to or approximately to the bilge-shape to be imparted to the stave-blank, and in cross-section this surface may also be curved to correspond to the curve the stave is to possess crosswise.

The shaper is made adjustable by means of screws, *e f*, the degree of curvature to be given to the stave being regulated by turning the screw *f* up or down, so that the rear end of the shaper may be pressed higher or lower, relatively to the entering angle of the blank, and the screw *e* being turned up or down in accordance with the thickness of the blank, and so that the teeth of the feed-roll may take sufficient hold of the fibres.

The end of a blank being presented between the roll *b* and the shaper above it, and motion being imparted to the roll in the direction of the arrow thereon, the teeth of the roll bite upon the fibres and force the blank along between the roll and shaper, and under the shaper, as denoted in the drawing, the teeth of the roll working into and bending or crimping the fibres on the under surface of the blank, so that the wood is bent much the same as when cross-cuts are made with a saw in a piece of wood to be bent, and as the teeth work upon but a small surface at once, while the part of the stave fed forward by the roll is only subjected to the action of the curved surface of the shaper, the blank is not only kept from breaking, but the curve produced in the wood is made permanent, the condition of the fibres of the wood being radically changed, the fibres on the inner surface of the stave being condensed and contracted, and the fibres on the outer surface being attenuated.

It will be obvious that the machine may be employed, without material modification, for bending wood for other purposes than for barrel-staves, though the specific construction shown is for that particular purpose.

I claim, in combination with the toothed feed-roll *b*, the concave shaper-block *c*, constructed and arranged relatively to the roll, substantially as shown and described.

I also claim, in combination with the toothed feed-roll, a shaper-block, made adjustable, substantially as set forth.

JOSHUA MERRILL.

Witnesses:

J. B. CROSBY,

FRANCIS GOULD.