C. W. THOMPSON. 2 Sheets—Sheet 1.

Machine for Making Barrel Hoops.

No. 202,073. Patented April 2, 1878.

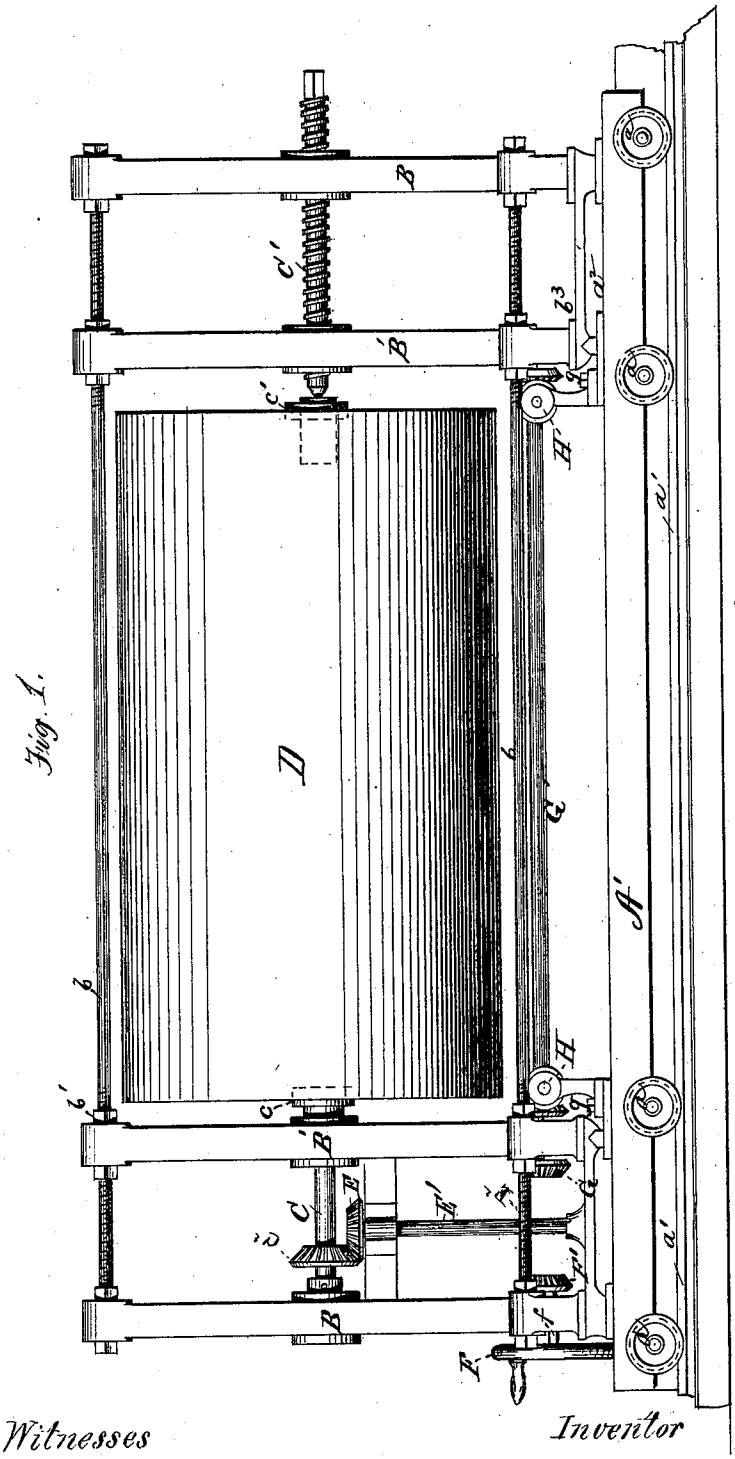

Fig. 1.

Witnesses

W. R. Edelen

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Inventor

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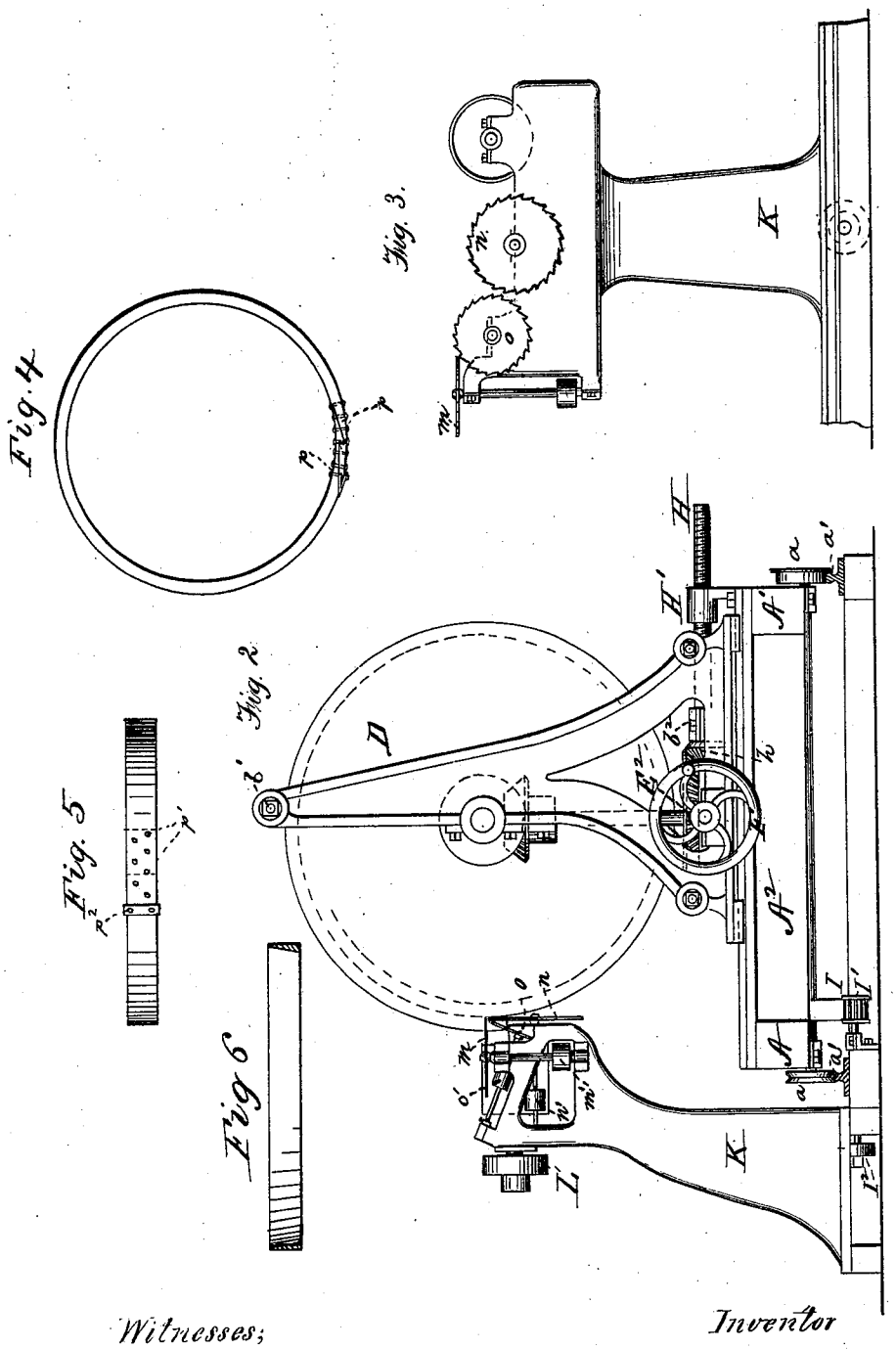

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UNITED STATES PATENT OFFICE.

CLARK W. THOMPSON, OF WELLS, MINNESOTA.

IMPROVEMENT IN MACHINES FOR MAKING BARREL-HOOPS.

Specification forming part of Letters Patent No. **202,073**, dated April 2, 1878; application filed May 1, 1877.

To all whom it may concern:

Be it known that I, CLARK W. THOMPSON, of Wells, in the county of Faribault and State of Minnesota, have invented certain new and useful Improvements in Barrel-Hoops; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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 letters of reference marked thereon, which form a part of this specification.

One object of my invention is to produce a better and cheaper flat hoop for barrels than has ever before been offered in the market; and to this end it consists in certain new features of construction, which will be explained.

Figure 1 is a rear view of a machine designed for cutting the hoop from the log. Fig. 2 is an end view of the same. Fig. 3 is a detached view of the standard upon which the saws are mounted. Fig. 4 is an edge view of the hoop, and Fig. 5 is a side view of the same.

In the drawings, A A^1 are the sills, and A^2 the arm-girts, forming the bed of the frame-work, which is mounted upon anti-friction wheels *a a*, which travel upon rails a^1 a^1. B B B′ B′ are standards supported upon each end of the bed, and are provided with suitable bearings for the spindles or shafts C C^1, the shaft C^1 and its bearings being screw-threaded, as shown. The standards B B′ are connected with each other by means of tie-rods *b* and nuts b^1.

Shaft C carries at its inner end a dog or clutch-plate, *c*, which engages with and is actuated by the log D, the log being suspended upon the dog-plate *c*, and a corresponding center plate, *c′*, at the opposite end of the log, which hangs upon the pivot-point of the screw-shaft C^1. C^2 is a bevel-gear keyed to shaft C. E is a bevel-gear keyed to the vertical shaft E^1. E^2 is a bevel-gear keyed to the shaft E^1 near its lower end. F is a hand-wheel keyed to a shaft, *f*, which carries at its inner end a bevel-wheel, F′, meshing with wheel E^2. G is a bevel-wheel mounted on shaft G′, and meshing with the bevel-gear E^2. *g g* are bevel-gears keyed to shaft G′. H H are feeding-screws, the rear ends of which are supported in screw-threaded standards H′ H′, secured to the rear sill A^1 of the bed, the front ends of these feeding-screws being placed in bearing boxes or blocks b^2, which project inwardly from the inner faces of the inner standards B′. *h h* are bevel-gears keyed to the inner or front ends of the feeding-screws, and mesh with bevel-gears *g g* on shaft G′.

The bearing-plates b^3 at the lower ends of the standards B B′ are of metal, and rest upon metal plates a^2. Some of these plates are provided with V-shaped grooves and ribs, as shown; and from the above description it will be readily seen that as the log is rotated the shafts C E^1 G′ and feeding-screws H H will move the log D and its supporting-standards B B′ transversely of the bed A A^1 A^2, the standards, their bearing-plates, and tie-rods *b* forming a sort of carriage; and it will also be seen that the log and its carriage can be moved upon the bed by means of the hand-wheel F.

I is a cogged rack secured to the under side of the log-carriage. I^1 is a pinion meshing with the cogged rack I, and driven by a band-pulley, I^2, upon the opposite end of the pinion-shaft, from any desired power. K is a standard rising from the bed or frame-work, and expanded laterally at its upper end to form a support for the saws. L is a band-pulley, from the shaft of which the saws are driven.

I employ three saws, *m n o*, Figs. 2 and 3. Saw *m* is arranged in a substantially horizontal plane with about the center of the log. Saw *n* occupies a substantially vertical plane, its upper edge intersecting the cut made by saw *m*. Saw *o* cuts in a plane at an acute angle to the path of the saw *n*, substantially as indicated in Fig. 2, from an examination of which it will be seen that by the joint operation of these three saws, the log being moved past them, I cut at each reciprocation of the log two hoops of uniform width, each hoop being thick at one edge and thin at the other edge; and it will be seen that the relative thickness of the edges of the hoops may be varied by changing the angle or position of the saw *n*.

m′ n′ o′ indicate band-pulleys upon the arbors of the saws, which may be driven by any usual or approved arrangement of belts.

It will, of course, be understood that after each pair of hoops is cut the log is to be rolled far enough toward the saws to cut more hoops, which movement may be accomplished by means of the crank-wheel or hand-wheel F, or by means of an automatic feeding attachment, and also that, as the log is thus rotated upon its axis, the feeding-screws H H will advance the log and its carriage toward the saws, the proportion of the gearing being such that at each complete revolution of the log it advances the requisite distance for cutting a pair of hoops.

By this machine I am enabled to produce what is called a "bastard cut" for each and every hoop until nearly the entire log is sawed up. The next step in the formation of my hoop is to bevel each end and cut in it the desired lock, as is indicated at *p p*, Fig. 4.

One object in making my hoop thicker at one edge than it is at the other is to provide a thick shoulder to facilitate driving it on the barrel by means of a machine which I have invented for that purpose.

Another and more important result which is secured by this construction is this: The wedge form of the hoop in cross-section, as shown in Fig. 6, enables me to make it of greater internal diameter at the thin side than it is at the thick side. Consequently it fits the shape of barrel with great accuracy, whereby the strain lengthwise of the fiber of the wood is uniform upon all parts of the hoop, thus enabling it to sustain a great internal pressure.

I secure the ends of the hoop by means of rivets p^1, and I apply a metal clamp or griper, p^2, to that end which is outside when the hoop is completed. This clamp serves to support the end of the hoop against being split when the rivets are put in, and also protects the end from injury after the hoop is applied to the barrel.

What I claim is—

1. In a machine for making hoops, the combination of the following elements, namely: a log-support, on which the log is rotated upon its own axis, two cutters in planes substantially at right angles to each other, and a third cutter at a different angle, to cut hoops from the log by means of a bastard cut, and mechanism, substantially as described, which moves the log past the cutters on a line parallel to its own axis.

2. In a machine for sawing hoops, two cutters arranged substantially at right angles to each other, and a cutter arranged at an angle to said two saws, whereby two hoops are cut from the log at one operation, substantially as set forth.

3. In a machine for making hoops, the combination of the reciprocating bed A A^1 A^2, the standards B B′ sliding transversely of the bed, the saw-bearing standard K, the rack I, and pinion I^1, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CLARK W. THOMPSON.

Witnesses:
H. H. DOUBLEDAY,
M. P. CALLAN.