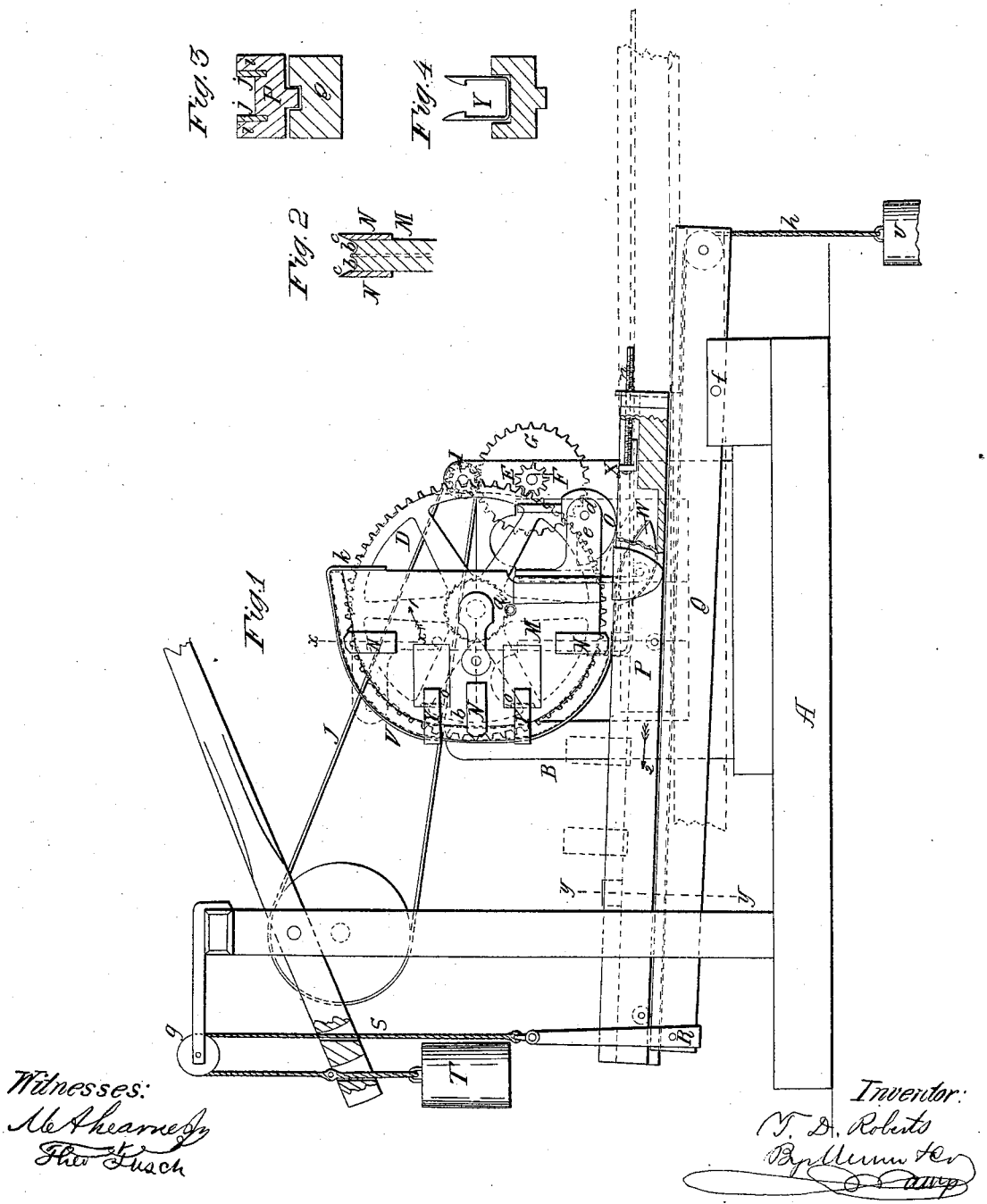
Sheet 1-2 Sheets.

T. D. Roberts,

Bending Wood,

No. 51,353. Patented Dec. 5, 1865.



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Sheet 2 - 2 Sheets.

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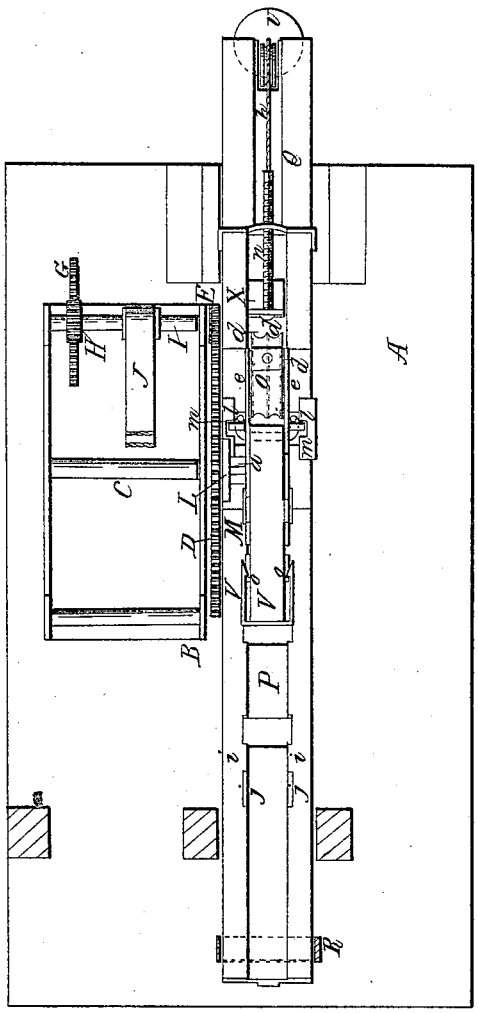

Fig. 5

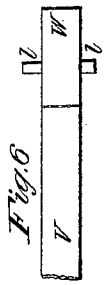

Fig. 6

Fig. 7

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UNITED STATES PATENT OFFICE.

THOMAS D. ROBERTS, OF MIDDLETOWN, NEW YORK.

IMPROVEMENT IN WOOD-BENDING MACHINES.

Specification forming part of Letters Patent No. **51,353**, dated December 5, 1865.

To all whom it may concern:

Be it known that I, THOMAS D. ROBERTS, of Middletown, in the county of Orange and State of New York, have invented a new and Improved Machine for Bending Saw-Frames; 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, Sheet No. 1, is a side elevation of my invention; Fig. 2, a section of a portion of the same, taken in the line *x x*, Fig. 1; Fig. 3, a section of a portion of the same, taken in the line *y y*, Fig. 1; Fig. 4, a detached side view of a clamp pertaining to the same. Fig. 5, Sheet No. 2, a plan or top view of the same; Figs. 6 and 7, detached views of one end of the follower pertaining to the same.

Similar letters of reference indicate like parts.

This invention relates to a new and improved machine for bending wooden saw-frames, such as are used for saws designed for sawing firewood, and which frames do not form a complete semicircle, the central portion being flattened. The invention, although more especially designed for bending saw-frames, is applicable for bending wood for other purposes.

A represents a base-plate, on which a framing, B, is secured; and C is a shaft placed horizontally in said framing and having a toothed wheel, D, upon it, into which a pinion, E, gears, the latter being on a shaft, F, which has a wheel, G, upon it, into which a pinion, H, on a shaft, I, gears, said shaft being driven by a belt, J, from a shaft, K, to which the power is applied.

The wheel D has a ratchet, L, secured to one side of it, and on the shaft C, at the outer side of the wheel D, a former, M, is placed loosely, but is rotated with the shaft in the direction of arrow 1, in consequence of the ratchet L engaging with a pin, *a*, which projects laterally from the former, as shown in Fig. 2.

The former M is made of a shape corresponding to that in which the wooden frame or other article is to be bent. In this instance it is represented as being designed for bending saw-frames, and may be described as approximating to a semicircle, the central portion, *b*, at the periphery being depressed or flattened, as shown clearly in Fig. 1.

The former has its periphery provided with two grooves, *b b*, to receive two wooden strips to be bent, and metal or wood plates, N, are attached to each side of the former, said plates projecting out beyond its periphery and having their inner sides beyond the periphery of the former beveled as shown at *c* in Fig. 2.

To the former at one end of it there is attached a metal cam, O, which has its periphery provided with two grooves, *d d*, corresponding to the grooves *b' b'* in the former M. This cam works or is fitted on a pin, *d*, between brackets *e e*, secured to the former, as shown in Fig. 5.

P represents a bed which is allowed to slide on a bar, Q, the latter being pivoted near one end to the base-plate A, as shown at *f*, and the opposite end fitted in a stirrup, R, which has a cord S, attached to it, said cord passing over a pulley, *g*, at the upper part of the framing A, and having a weight, T, at its end. (See Fig. 1.)

The bed P has a weight, U, connected to its outer end by a cord, *h*, and said bed is provided with sides, *i i*, which may have metal plates, *j*, or pins inserted in them to serve as guides for the wood while being bent. (See Fig. 3.)

V represents the metal strap or follower, which is attached permanently at one end to one end of the former M, as shown at K in Fig. 1.

The opposite end of the follower has an oblong metal head, W, attached to it approximating to an oval in form, (see Figs. 6 and 7,) and having a pin, *l*, projecting from each side of it, said pins, when the device is at work, fitting in recesses *m m* in the sides *i i* of the bed P, as shown in Fig. 5.

X represents a sliding head, which is fitted in the bed P at its outer end, and is moved by a screw, *n*, as shown in Figs. 1 and 5.

Y Y represent two clamps, which are bent in U-form and encompass the follower or strap V and catch over projections *o* at each side of the former M when the latter passes down between them. One of these clamps is shown clearly in Fig. 4.

The operation is as follows: The wood to be bent is properly steamed and laid on the strap

or roller and the wood having the head X pressed up snugly against its outer end. The former M is then rotated in the direction indicated by the arrow 1, and the wood—the two pieces—is bent around the former, the weight T keeping the follower and wood snugly in contact with the periphery of the former, while the sides *i i* or plates *j j* prevent the strip of wood from bending laterally. The plates N, as the former rotates keep the wood in a proper position admitting of its passing into the grooves *b' b'* in the periphery of the former. The clamps Y Y are fitted in the bed P, the follower V being within them. The clamps catch over the projections *o o* as the flattened portion *b* of the former M passes between them. and in so doing secure the wood to said portion *b* and prevent it from springing out therefrom, a contingency which would be sure to occur if the clamps were not used. When the former is thus rotated it will be seen that the bed P moves in the direction of arrow 2, and when the former M has made a half-revolution the two pieces of wood will be bent around the former. The portions which project beyond the lower end of the former and are in bed P are the handle portions, and they are brought to the desired shape, turning the cam *o* and pressing said portions between the head W of the follower and the cam *o*. (See Fig. 1.) Where the cam *o* is thus adjusted a clamp, Z, is fitted on the pins *l* of the head and in a notch, *p*, in the former, said clamp securing the follower and the wood to the former. The bed P is then lowered, and the weight U will draw back the bed. The former is then removed from the shaft C, another inserted in its place, and the operation repeated.

The bed P may be lowered at any time by actuating a lever, P', connected with the cord S of weight T.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the grooved former M, beveled plates N, and grooved bed P, constructed and operating as set forth.

2. The employment or use of clamps Y, constructed and arranged as shown, for the purpose of securing the wood to the periphery of the former, as described.

3. The cam *o*, attached to the former, and the head W, attached to the follower, separately and combined, for the purpose of giving the proper shape to the handle end of the wood, as set forth.

THOMAS D. ROBERTS.

Witnesses:

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THOMAS CAVANAUGH.