

H. McDONALD.
Improvement in Wood Bending Machines.
No. 120,305. Patented Oct. 24, 1871.

Fig. 1.

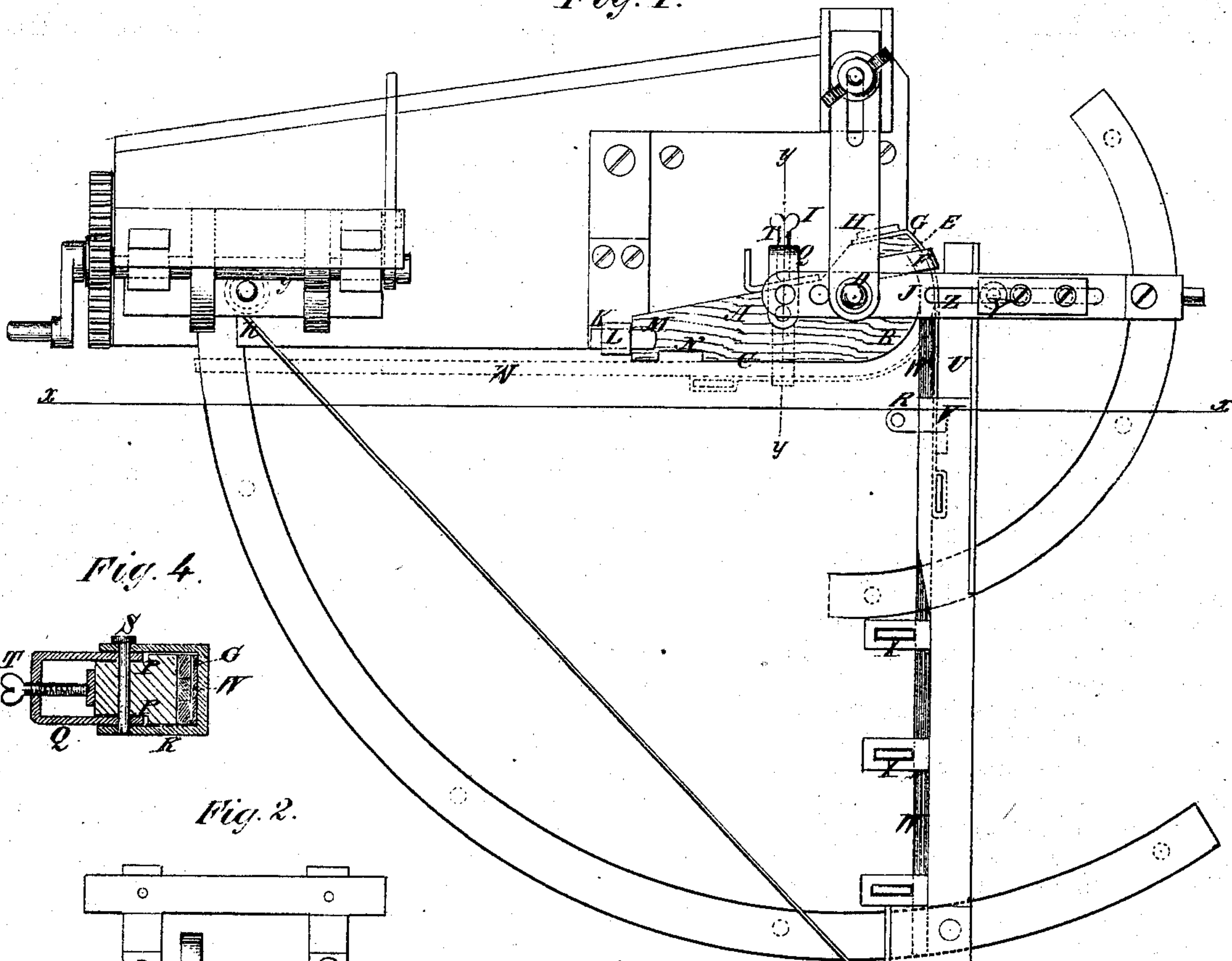


Fig. 4.

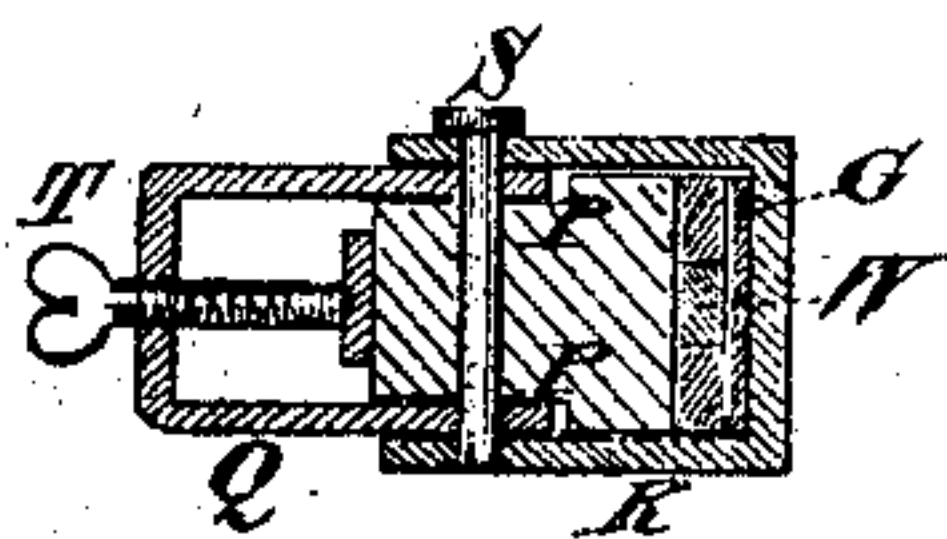


Fig. 2.

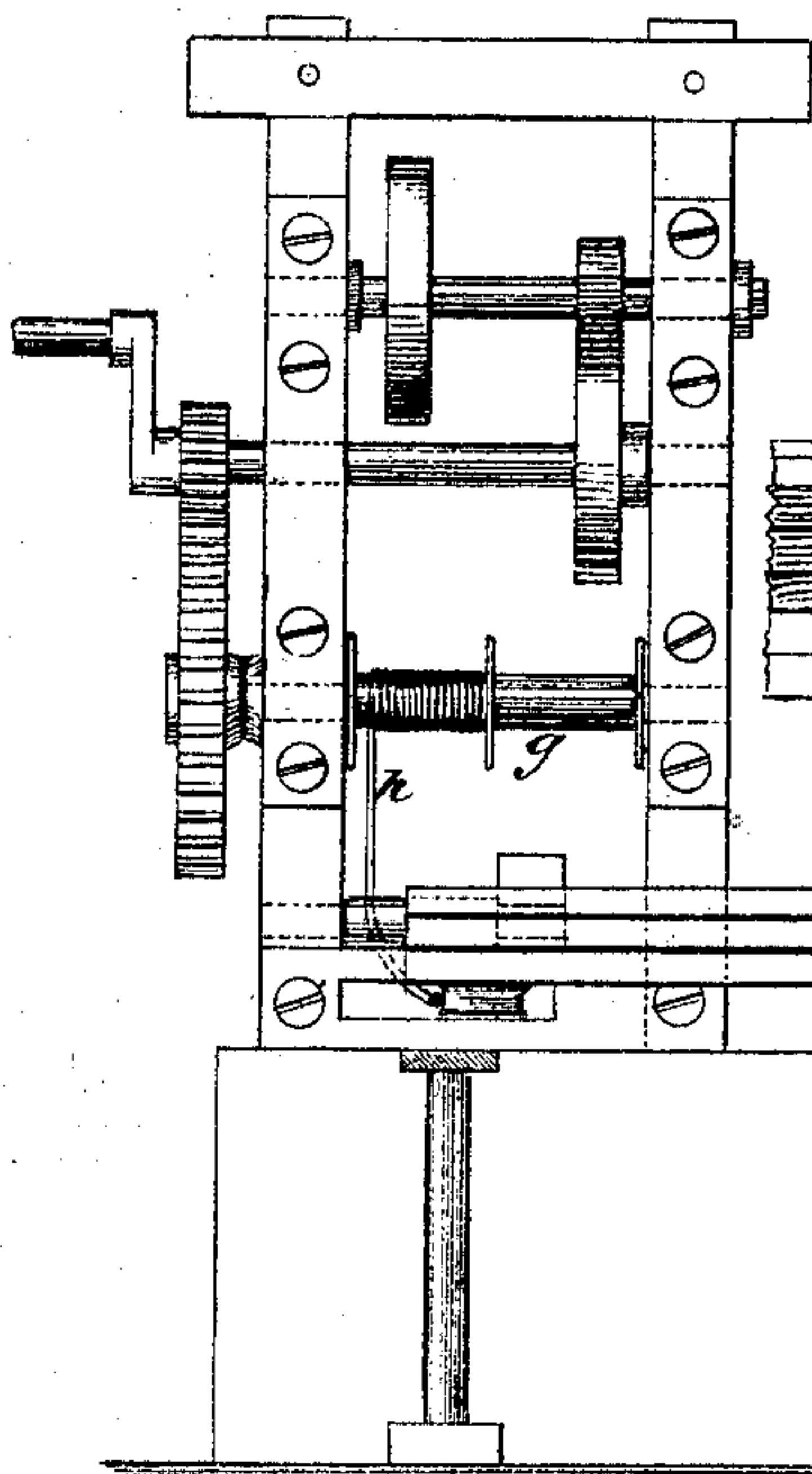
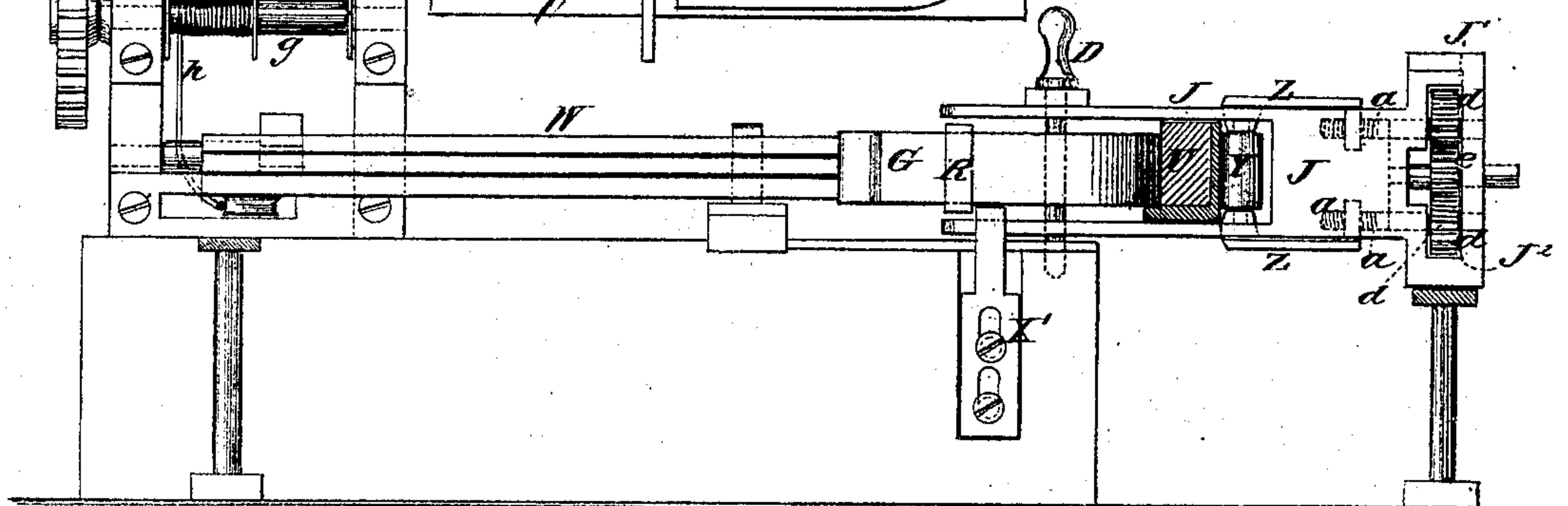
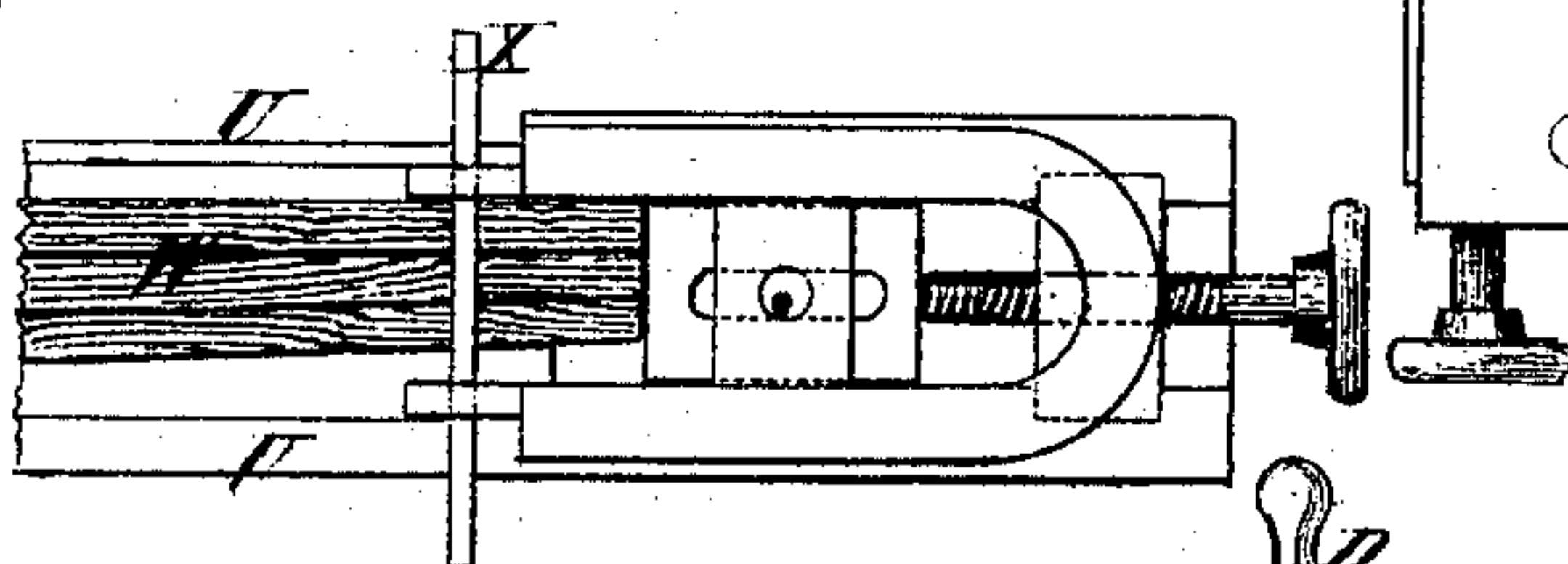


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

HIRAM McDONALD, OF SHORTSVILLE, NEW YORK.

IMPROVEMENT IN WOOD-BENDING MACHINES.

Specification forming part of Letters Patent No. 120,305, dated October 24, 1871.

To all whom it may concern:

Be it known that I, HIRAM McDONALD, of Shortsville, in the county of Ontario, and State of New York, have invented a new and Improved Wood-Bending Machine; 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 drawing forming a part of this specification.

My invention consists in the improvement of machines for bending wood, as hereinafter fully described and subsequently pointed out in the claims.

Figure 1 is a plan view of my improved bending-machine. Fig. 2 is mainly a side elevation, but showing some of the parts sectioned on the line *x x* of Fig. 1. Fig. 3 is a side elevation of a part of the bed and the devices employed for regulating the end pressure on the pieces to be bent. Fig. 4 is a section on the line *y y* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A is the former, consisting of a block of wood about twice as long as the part of the thill to be bent, with a true curve of ninety degrees on one corner at B, to which the side C is a tangent, said curve being struck from the center, where a vertical hole is formed for a strong pin, D, for holding the former to the machine by passing through the bar H and bed I; said pin also holds the bending lever J. The curvature extends beyond the radial line, which is parallel with the side C, but not on a true circle, and terminating at the shoulder E, where a metal yoke, F, is attached for confining the ends of the pieces to be bent, which are first introduced here against said shoulder, between the face of the block and the metal strap G, also confined by the yoke and attached to the block behind said yoke. The other end of the former is provided with a tenon, K, which enters the yoke or staple L rising up from the bed I of the machine, and is secured in said yoke by a key, M, driven in above it. At N a notch is provided in the front face of the former to provide room for one of the bars of another former, by which the pieces to be bent are clamped to the said other former which is employed in another machine for imparting the before-men-

tioned curve to said pieces, said other machine being described in an application for a patent filed with this. Another groove or notch, not seen in the drawing, is made across the under side of it, in connection with notch N to provide room for a key to be used in clamping the second former to it. At P said block is also notched, top and bottom, to admit of the application of a yoke, Q, for connection with another, R, by a pin, S, for confining the wood-piece to the block after being bent, the yoke Q being provided with a binding-screw, T, for securing the whole together previous to the release of the bending-lever J and the bed U, employed for bending the pieces around said former. The part K of this confining apparatus is placed in position on the bed U, as seen at V, before the wood-pieces are put in, and is left with the wood when the bed U is removed. X' is a bent bar, adjustably attached to the bed I to engage the former at the rear side of its hooked end to assist the bolt in holding the former in place. The bed U, to which the broad pieces W are clamped by the keys X, before being bent is to be pressed up against said pieces for compressing them against the former by the roller Y of the bar J, for which the said roller is made adjustable toward and from the bed, which is placed between said roller and the former. The said roller is therefore mounted on the slides Z, which are fitted to the slotted bars Z' of bar J, so as to be confined thereby, and each is provided with an adjusting screw, *a*, fitted in the slotted end J¹ of said lever to extend across the slot J², and so that they can revolve, but not move endwise. Each screw is provided with a pinion, *d*, gearing with another pinion, *e*, on a shaft, *f*, between them, and projecting beyond the end of the lever end J¹ to receive a crank for turning it. This I find a much more reliable manner of adjusting the slides on which the roller is mounted than the plan represented in my patent No. 178.

The bed U, strap G, and lever J are actuated by a winding-drum, *g*, and cord *h*, either by a hand-crank or power apparatus, substantially in the same manner as the machine described in my aforesaid patent, and need not therefore be more particularly described.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the former A, of the yokes Q R, connecting-pin S, and binding-screw T, substantially as specified.

2. The combination of the said former A with the strap G, bed I, and bending-lever J, all constructed substantially as specified.

3. The arrangement, with the lever J and roller Y, of the slides Z, screws *a*, pinions *d e*, and shaft *f*, substantially as specified.

HIRAM McDONALD.

Witnesses:

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