JOHN L. WHIPPLE & E. TROWBRIDGE.

Improvement in Wood-Bending Machines.

No. 127,396. Patented May 28, 1872.

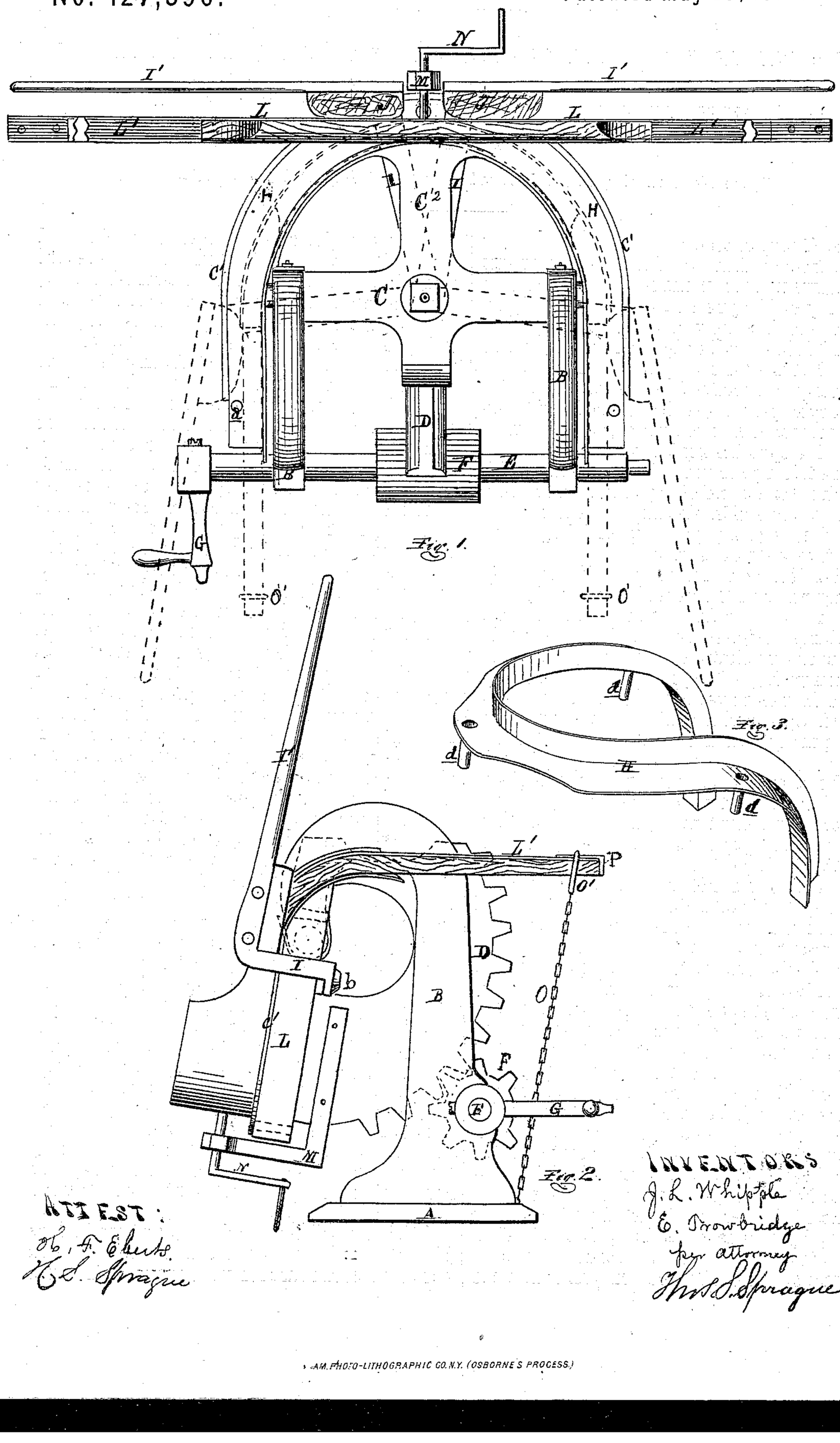

Fig. 1.

Fig. 3.

Fig. 2.

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JOHN L. WHIPPLE AND EDMUND TROWBRIDGE, OF DETROIT, MICHIGAN.

IMPROVEMENT IN WOOD-BENDING MACHINES.

Specification forming part of Letters Patent No. 127,396, dated May 28, 1872.

To whom it may concern:

Be it known that we, JOHN L. WHIPPLE and EDMUND TROWBRIDGE, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Wood-Bending Machines; and we do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a plan view of our machine with the stick inserted and clamped ready for bending. Fig. 2 is a side elevation at the completion of the bending process; and Fig. 3 is a perspective view of a former.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a machine more particularly designed for bending the backs and rims of arm-chairs in one piece and at one operation with great rapidity. The invention consists in the novel and peculiar construction and arrangement of the various parts, for the purposes as more fully hereinafter set forth.

In the drawing, A represents a bed-plate, from which rise two standards, B, curved backward and downward, and having journaled in their pendent ends the ends of a shaft, C, which protrude through their bearings. With the shaft there is cast a semicircular rim, C^1, whose ends embrace the ends of said shaft, and also a central rib, C^2, pendent from which there is cast a geared sector, D. E is a shaft, journaled in the lower part of the standards, carrying a pinion, F, which meshes with the sector; it is also provided with a crank, G, by which it may be rotated, so that through the sector the forming-rim may be tilted from the horizontal plane to that shown in Fig. 2. H, Fig. 3, is a flanged iron former, conforming in outline to the back rim and arms to be bent, and is provided with three tubular studs, *d*, which are inserted in corresponding sockets in the rim C^1 of the machine to hold it in place thereon. To the under side of the center of the shaft C there is pivoted, by means of a bolt, *b*, two radial arms, I, turned upward at their outer ends to the plane of the stuff to be bent, and then are bent at a right angle horizontally forward to form levers I′. At the bends of these levers there is secured to each a pressure-block, J, or a roller, if preferred, which bears against the flexible sheet-metal bending-strap, L, which is always employed in bending to prevent the splintering of the convex side of the timber. Where the curve downward, at the ends of the arms, commences the strap is brought over the stuff to the ends thereof, as seen at L′. M is a clamp, bolted to the rear upper part of the sector, or to the rim, if preferred, with a vertical limb rising behind the center of the said rim. N is a clamp-screw threaded through the upper part of the clamp, its point bearing on the center of the stuff when the former is screwed in to clamp it fast. O are two chains, hooks, or cords, secured to the bed-plate, one at each standard-foot, with their free ends provided with loops O′ to slip over the ends of the stuff, which is represented at P.

A steamed piece of timber is placed on the former and clamped at its center by the screw, as seen in Fig. 1, after placing on it the strap L L′, the levers being in the position shown.

Two boys are employed to operate the machine, and one takes hold of each lever to draw it around to the position shown in dotted lines in Fig. 1, the pressure-blocks forcing the timber against the flange of the former as they are drawn around, and thus bend the horizontal semicircle of the back and rim. The stuff is now clamped in the bent position by inserting pins in the tubular studs *d* on the outside of the strap. Then one of them rotates the shaft E to tilt the frame C C^1 C^2 and the partially-bent stuff, while the other slips the loops of the chains over the extremities of the stuff, so that the ends of said stuff will be gradually bent over the curves at the ends of the former, as seen in Fig. 2. By tying or clamping the ends to keep them in place the bent stuff, together with its former and strap, may be removed from the machine and sent to the dry-kiln to set and season, when the operation may be repeated with other formers and straps as long as the supply thereof and the steamed stuff lasts.

With the ordinary machinery and appliances hitherto used for bending this class of work the services of four men were required in bend-

ing, and the loss of material by cracking, checking, and splitting frequently reached to thirty and forty per cent. in bending, while this machine requires only two boys, and the loss by breakage in bending is scarcely one per cent.

In lieu of the spur-gearing shown for tilting the bending-frame, the sector may be provided with worm-teeth and be driven by a worm or screw.

What we claim as our invention, and desire to secure by Letters Patent, is—

The standards B, shaft and former-frame C C^1 C^2, geared sector D, shaft E, pinion F, clamp M N, arms I, levers I′, pressure-blocks J, and chains O, in combination with the former H and strap L L′, substantially as and for the purpose set forth.

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Witnesses:
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