W. M. WATSON.

MACHINES FOR BENDING THE LEAVES OF ELLIPTIC SPRINGS.

No. 177,443. Patented May 16, 1876

Fig. 1.

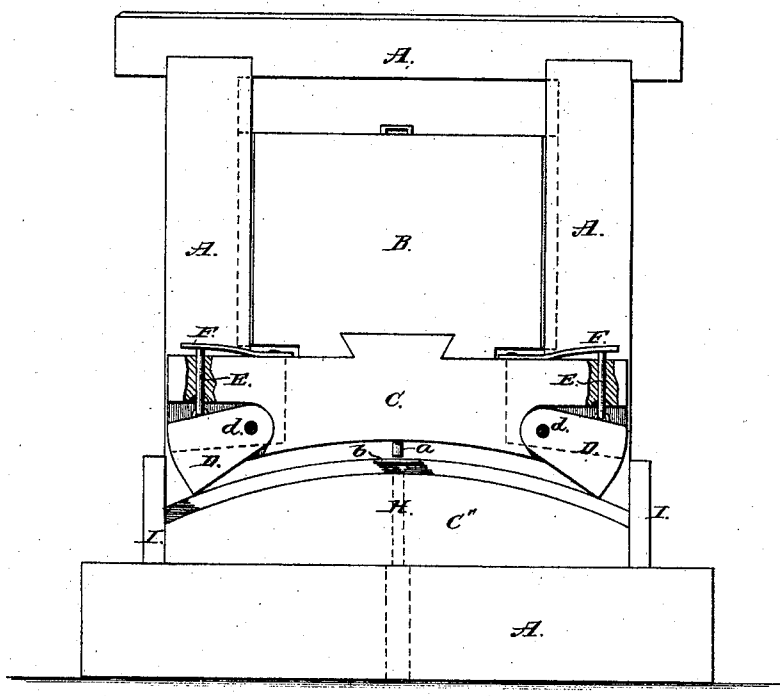

Fig. 2.

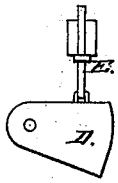

Fig. 3.

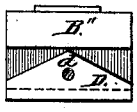

Fig. 4.

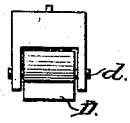

Fig. 5.

Witnesses:

Ed. W. Wood.

P. W. Flowie.

Inventor:

W. M. Watson

UNITED STATES PATENT OFFICE.

WILLIAM M. WATSON, OF TONICA, ILLINOIS.

IMPROVEMENT IN MACHINES FOR BENDING THE LEAVES OF ELLIPTIC SPRINGS.

Specification forming part of Letters Patent No. **177,443**, dated May 16, 1876; application filed March 15, 1876.

To all whom it may concern:

Be it known that I, WILLIAM MEDD WATSON, of Tonica, La Salle county, State of Illinois, have invented a new and valuable Improvement in Machines for Bending the Leaves of Elliptic Springs; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

Figure 1 represents my machine in a front partially-sectional view. Fig. 2 represents one of the movable ends, provided with a weight instead of a spring. Figs. 3, 4, and 5 represent side, end, and top views, respectively, of a modification of the movable end.

The die C, instead of having movable ends, may be divided into three parts, in which case slideways are provided for each part, similar to those here shown for the die itself. The end drops are recessed, and a block pivoted therein, as shown in Figs. 3, 4 and 5.

A A A A is the frame of the drop. B is the drop. C is the part of the die attached to the drop, and C″ is the stationary part. D D are the movable ends of die C, with front part removed, as seen by the broken lines. *d d* are journals on which D moves. E is an upright pin, attached to D by an eye, the upper end being pressed by the spring F. *a* is a punch to form the center hole in the leaf of the spring; and if more holes are required, like punches can be arranged in any way to suit the shape of the holes. *b* is a thin piece of iron, with a hole through it for the punch *a* to pass through, which is so placed over the die C″ as to hold the leaf of the spring from moving when placed on the die to be bent. I I are guides for the ends of the leaf. H is a hole through the die C″ and frame, to allow the punchings to drop through.

The dies are made in pairs for leaves of different lengths. The object of providing the movable ends is to make the die fit any taper at the ends of the leaves, and thus give the proper bend to fit the spring and take up the chatter.

I claim—

1. The die C, with movable ends D D, substantially as described.

2. The combination of the upper die C and lower die C″ with the plate *b*, to hold the spring, the guides I I, and punch *a*, substantially as described.

WILLIAM MEDD WATSON.

Witnesses:

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