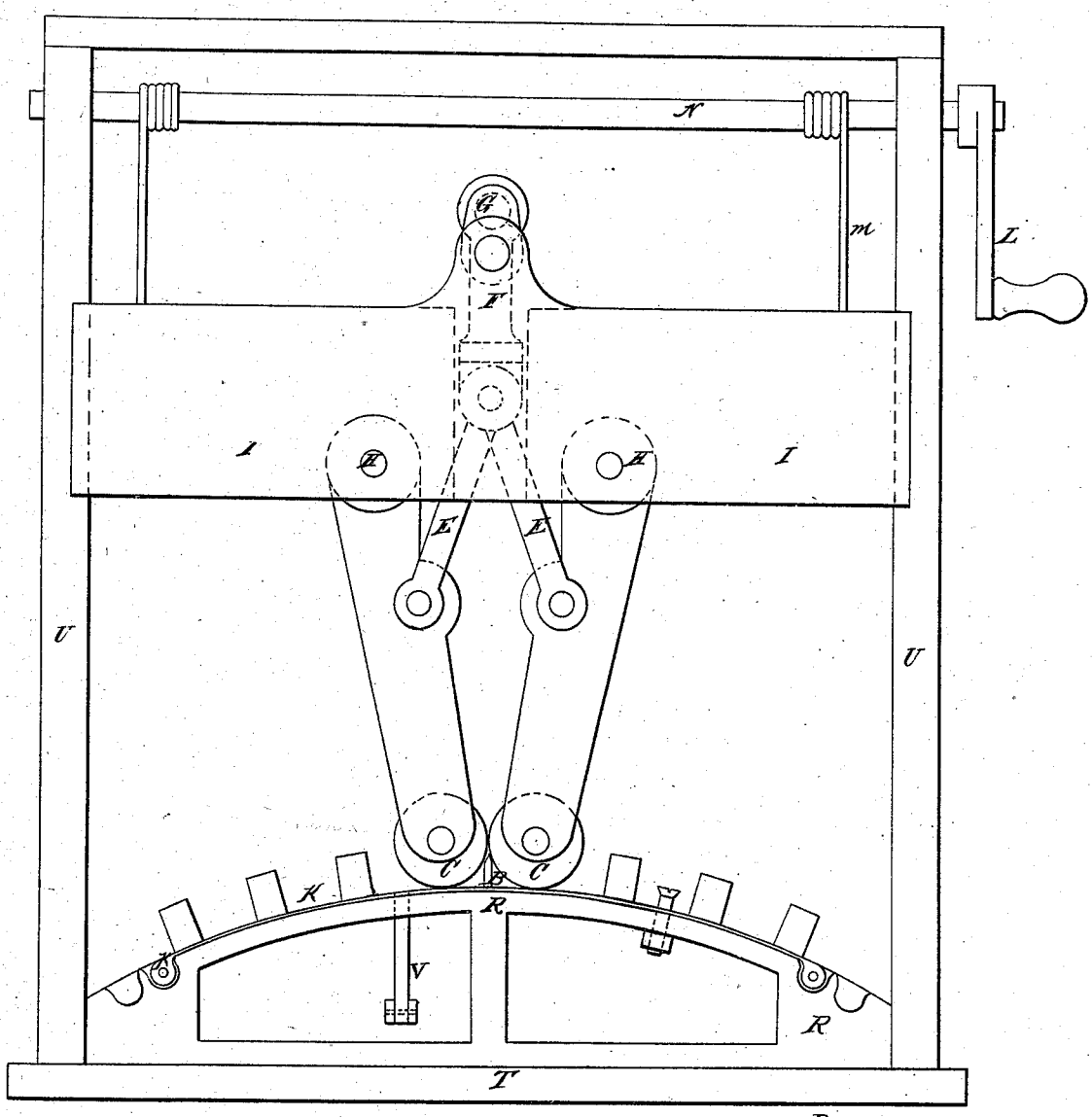
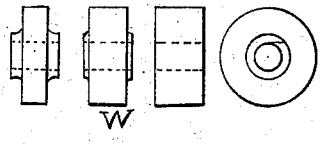
J. Gatchell,

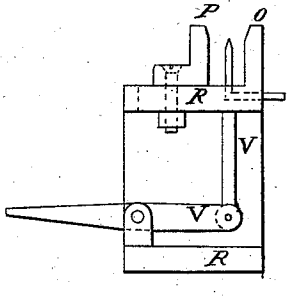
Bending Springs,

No. 83,625. Patented Nov. 3, 1868.



Series of Rollers C C





Witnesses.
Thos. S. Crane
William H. Dodd

Inventor.
Joseph Gatchell

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JOSEPH GATCHELL, OF RAHWAY, NEW JERSEY.

Letters Patent No. 83,625, *dated November* 3, 1868.

IMPROVED MACHINE FOR BENDING ELLIPTIC SPRINGS.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, JOSEPH GATCHELL, of Rahway, Union county, New Jersey, have invented certain Improvements in Machines for Bending the Springs Employed between the Axles and Bodies of Wagons, Carriages, &c.; and I hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and the letters of reference marked thereon.

The machine consists of a bed-plate, T, supporting two upright posts, U, between which a cross-head, I, slides freely, being carried downwards by its weight, and lifted, after bending each spring or part of a spring, by the cords M, shaft N, and crank L, or equivalent device.

Beneath this cross-head, a templet, R, is fastened to the bed-plate, the upper part of which is constructed in a novel manner, that affords certain advantages that I claim as my invention.

The top of the templet has, at one side, a fixed vertical flange, or series of fixed stubs, O, and, at the other side, a flanged gauge, P, adjustable at any required distance from the fixed flange or stubs O.

Between this gauge P and fixed flange or stubs O, the back or plates of a spring may be laid, and, by adjusting the gauge to the distance required between it and the fixed flange or stubs, the width of the spring being bent will be given, (say one and one-fourth inch for one and one-fourth-inch springs, or two inches for two-inch springs,) and the plate or back of the spring will be kept straight sidewise, as it is bent by the machine flatwise to the curve of the templet R.

At the middle of the length of the templet is a pin, B, which is also adjustable sidewise, to make it correspond with the holes in the centres of springs of different widths.

When the fixed flange is used at O, in conjunction with the gauge P, notches may be made in the edges, or perforations through either or both of them, to admit water freely from the side upon the spring, to cool it.

The spring K is bent, while hot, to the curve of the templet R by two rollers, C and C', (said rollers being two of a series, hereinafter described and claimed,) which are so combined with the cross-head I that they have a motion (each of them) from the middle of the spring outward, (as it lies on the templet, being bent,) while the weight of the cross-head I rests upon them, and continues its pressure upon them, while they bend the spring on the templet.

After bending each plate of the spring, the cross-head, with the rollers, is lifted up, and a new plate is placed on the pin B, which is then subjected to the action of the rollers and the weight of the cross-head, (as before described,) thus conforming the back plate of the spring to a suitable templet, and then conforming each successive plate not only to the templet upon which the back lies, but the plate preceding it on the templet, which it is essential to have it fit neatly and closely.

To effect the cooling of the successive plates, (as they are bent while hot,) a stream of cold water is directed on the plate, behind the roller, as it moves from the middle outward, and, after bending, water may be introduced through the notches at the side flanges of the templet, or between the stubs O, to cool the plates thoroughly, the notches greatly assisting in the introduction and circulation of the water.

I employ, for moving the mechanism connected with the rollers C, a crank, G, which is carried by the cross-head, and conveys motion, simultaneously to the two rollers, by the connections F and E E, the rolls being fixed at the ends of two levers, pinned to the cross-head at H H, and having a curved motion from those centres.

To vary the throw of the crank, in order to adjust the motion of the rolls to springs of different lengths, the crank G may be made with several holes, at different distances from the centre, in which to insert the crank-pin.

To remove the springs readily from the templet after bending, a lifter, V, is provided in the top of the templet, that presses on the under side of the back of the spring, and lifts it enough to admit the tongs required to remove it.

I make the rolls employed for bending springs of different widths in a series, (in respect to width,) having them all of the same thickness at the hub, as shown at W, (so as to fit equally in the spaces at the ends of the levers Y Y, by which they are carried,) but varying in width at the periphery, to suit the springs of different widths.

Claims.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, substantially as described, of the templet, rolls, bending-levers, and weight.

2. The combination of the series of rolls with the bending-levers and templet, arranged substantially as described.

JOSEPH GATCHELL.

Witnesses:

THOS. S. CRANE,

WILLIAM H. DODD.