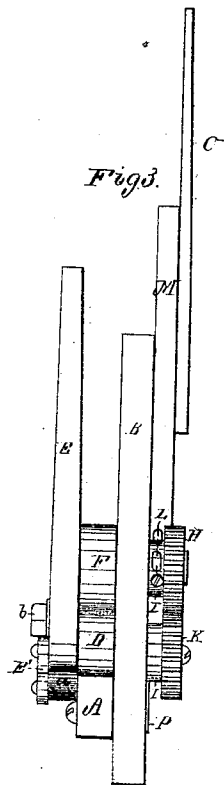
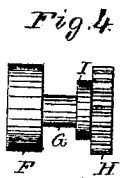
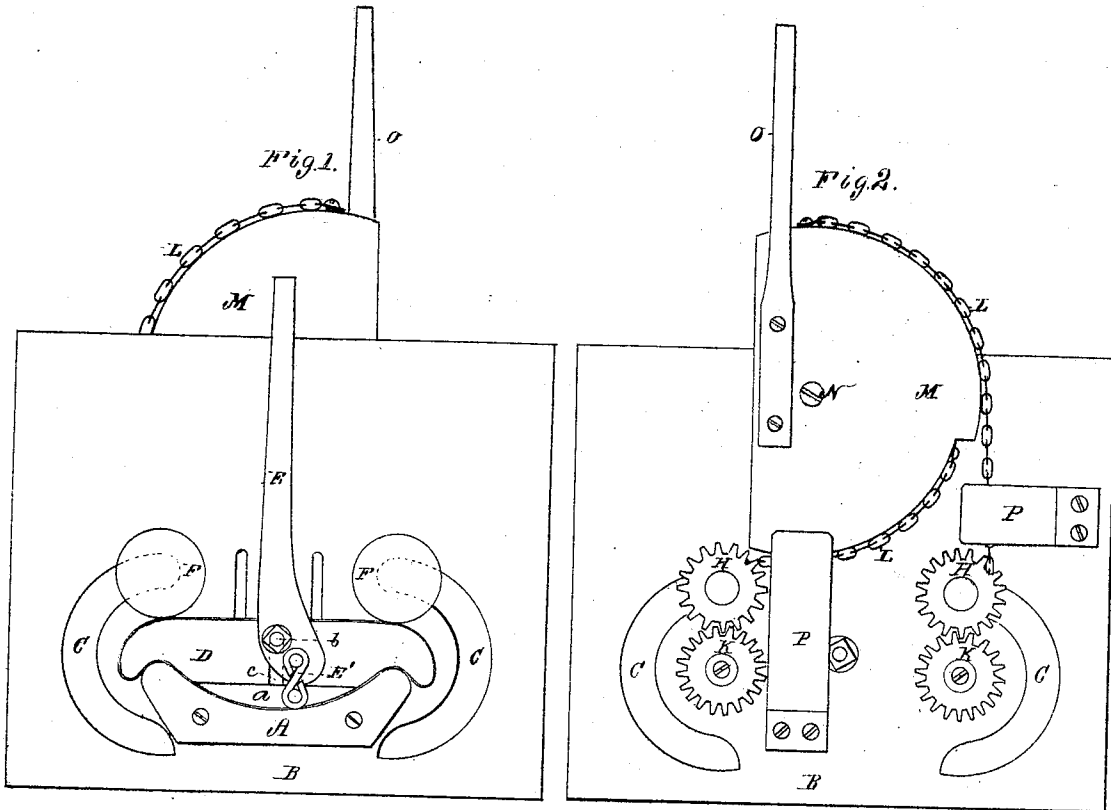


L. H. RICHARDSON.

Improvement in Machines for Shaping the Springs of Light Carriages.

No. 128,173.

Patented June 18, 1872.



Witnesses.
S. N. Piper
L. N. Miller

Lorenzo H. Richardson.
 by his attorney.
R. W. Wadsworth

UNITED STATES PATENT OFFICE.

LORENZO H. RICHARDSON, OF WESTFIELD, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR SHAPING THE SPRINGS OF LIGHT CARRIAGES.

Specification forming part of Letters Patent No. 128,173, dated June 18, 1872.

To all persons to whom these presents may come:

Be it known that I, LORENZO H. RICHARDSON, of Westfield, of the county of Hampden, of the State of Massachusetts, have invented a new and useful Machine for Shaping Springs used in the Construction of Light Carriages, particularly such as are termed "children's carriages;" and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a front view, and Fig. 2 a rear elevation, and Fig. 3 an edge view of such machine.

It consists of shaping-dies, rollers, and their operative mechanism, all arranged and constructed and applied to a plate substantially as hereinafter explained and as shown.

In the drawing, A denotes a curved bed or stationary die, fixed to and projected from a metallic plate, B, having two curved slots, C C, arranged in and through it, in manner and with respect to the said bed as represented. Directly over the bed is the spring-shaping follower or movable die D, having a form as shown, such die being provided with a projection, *a*, for a cam-lever, E, arranged, as shown, to operate against. The said cam-lever is supported on a fulcrum or pivot, *b*, extended from the plate B and through a slot, *c*, made transversely through the follower-die D. The projection *a* of the die D is connected with the shorter arm of the cam-lever by a nexus, E', pivoted to both. F F are two rollers, fixed on arbors G G extended through the two slots C C, there being gears H H fixed on such arbors. Each of these gears is provided with a pulley, I, projected from its inner side concentrically, all being as shown in Fig. 4, which is a top view of one of the arbors G, its roller F, gear H, and pulley I. Stationary gears K K, fixed to the back of the plate B, and arranged as shown—viz., concentrically, or about so, with the curved slots C C—engage with the gears H H. Furthermore, two chains, L L, fastened to the peripheries of the pulleys I I, and ex-

tended partially around such, extend to and are fastened to the peripheries of a rotary segment, M, arranged to turn on a pivot, N, and provided with a lever or arm, O, all being as shown. Guides P P, extended from the plate B and projecting across the chains, serve to keep them from slipping off the periphery of the segment while the latter may be in operation.

By laying hold of the cam-lever E and moving it in the right direction, the follower-die will be forced down toward the bed-die, a contrary motion of the lever serving to raise the follower-die up to a position for a straight strip of steel, when heated to redness, to be introduced between the dies and upon the two rollers, when the latter are at their lowest positions. After the said strip may have been so placed between the dies the cam-brace is to be operated so as to force the follower-die downward into the bed-die and against the two rollers. This operation will cause the spring or strip of steel to be partially bent around the follower. The remainder of the bending of the strip is to be performed by the rollers, which will be caused to move upward, around the ends, and over the upper edge of the follower-die by a person taking hold of and moving the arm or lever of the segment.

The spring, when completed, has the form as shown in edge view in Fig. 5.

I claim—

The machine, constructed substantially as and for use as specified—that is, as composed of the bed-die A, follower D, cam-lever E, plate B, curved slots C C, rollers F F, arbors G, pulleys I I, gears H K, chains L L, and movable segment M pivoted with the lever or arm O—all arranged and applied together in manner and to operate essentially as described and represented, and for the purpose as explained.

LORENZO H. RICHARDSON.

Witnesses:

R. H. EDDY,
J. R. SNOW.