(Model.)

# L. F. BEALS.

## TINSMITH'S ROLLER.

No. 303,415. Patented Aug. 12, 1884.

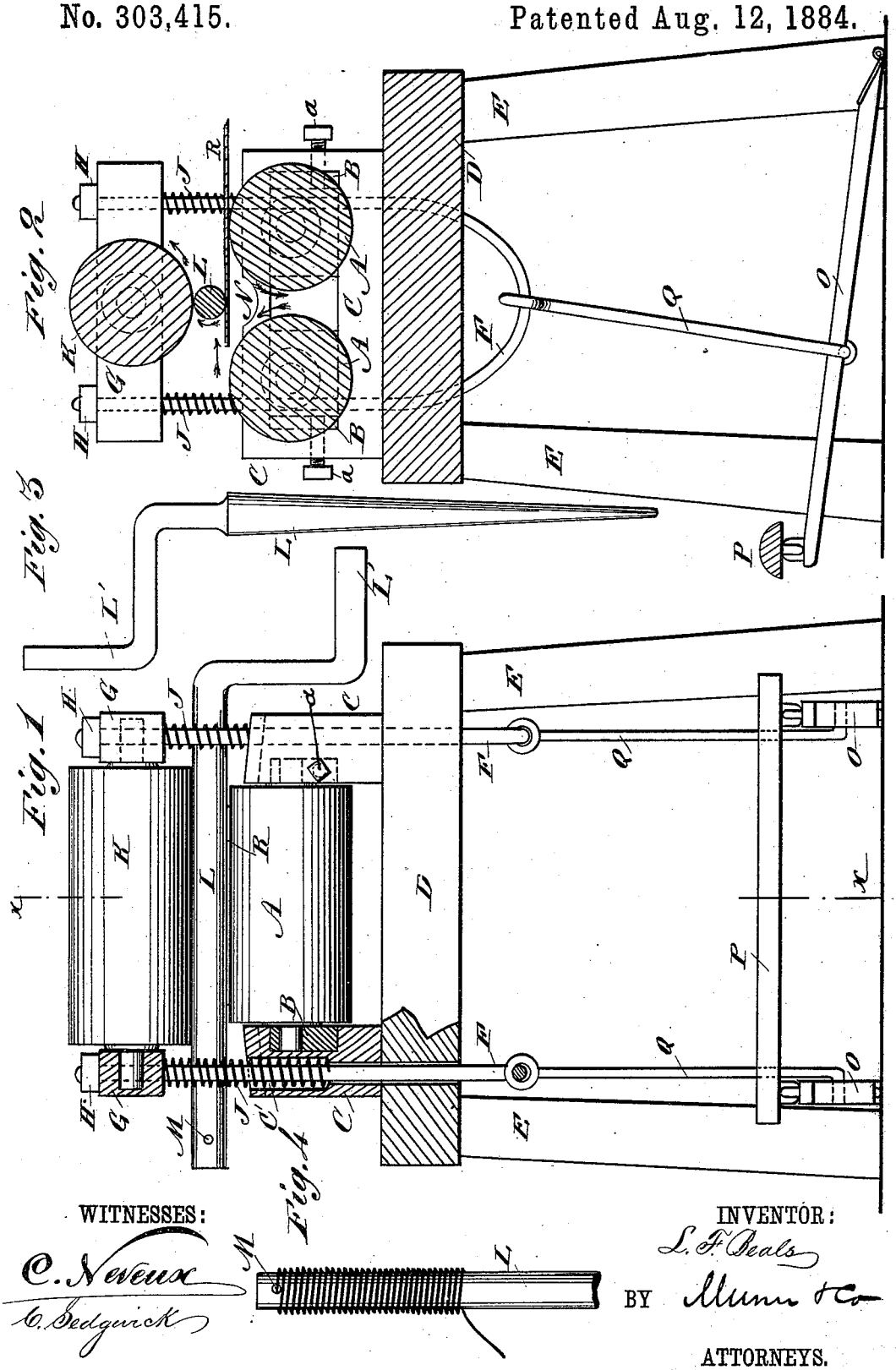

Fig. 2

Fig. 3

Fig. 1

Fig. 4

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## TINSMITH'S ROLLER.

SPECIFICATION forming part of Letters Patent No. 303,415, dated August 12, 1884.

Application filed April 17, 1884. (Model.)

*To all whom it may concern:*

Be it known that I, LAZELLE F. BEALS, of Marquette, in the county of Marquette and State of Michigan, have invented a new and Improved Tinsmith's Roller, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved tinsmith's roller for rolling small sheet-metal tubing and wire springs.

The invention consists in a machine for making sheet-metal tubing, constructed with two rollers journaled in fixed blocks, a roller journaled in vertical movable spring-pressed blocks, and a mandrel held loosely between the rollers. The movable roller is held in frame connected by rods with a foot-lever by means of which the adjustable roller can be pressed on the mandrel, which in turn is pressed on the sheet metal and bends the same, all as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front view of my improved tinsmith's roller, parts being broken out and others shown in section. Fig. 2 is a cross-sectional elevation of the same on the line *x x*, Fig. 1. Fig. 3 is a longitudinal view of the tapering mandrel. Fig. 4 is a longitudinal view of the straight mandrel, showing the manner of making the wire springs.

Two rollers, A, have their ends journaled in journal-boxes B, held adjustably in blocks C on a platform, D, supported by legs E. A U-shaped frame, F, passes through each block C and the platform D, from the bottom upward, and through blocks G, held above the blocks C, and nuts H are screwed on the upper ends of the prongs of the frames F and rest on the top edges of the blocks G. Spiral springs J, coiled around the prongs of the frames F, are held between the corresponding blocks, C and G, and press the blocks G upward. A roller, K, is journaled in the blocks G in such a manner that it is above and midway between the rollers A. A mandrel, L, is held loosely between the rollers K and A, which mandrel is either made tapering or of uniform thickness, and is provided at one end with a crank-handle, L'. The mandrel is provided at one end with an aperture, M. The blocks C are provided in the centers of their top edges with notches N, for receiving the mandrel when the same is pressed down. The blocks C are preferably provided in the top edges with recesses or apertures C', for receiving the lower ends of the springs J. Two levers, O, pivoted to the rear legs, are united by a cross-piece, P, linked to the levers, thus forming a treadle, which is connected by connecting-rods Q with the frames F by a link or eye joint. The rollers A can be adjusted to be parallel or inclined to each other. The rollers are not geared with each other.

The operation is as follows: A piece of sheet metal, R, which is usually of a little greater length than three times the diameter of the mandrel upon which the tube is to be formed, is placed on the front roller A, with one end projecting slightly over the rear roller. The mandrel L is then placed between the piece of metal and the upper roller, K, when the treadle is depressed to draw the roller K down, which downward movement of the said roller presses the mandrel L down between the rollers A, and with it the piece of metal, and thus bends the same. The mandrel is then turned, when the rollers will be revolved by frictional contact in the direction of the arrows, Fig. 2, and the piece of metal R will be fed into the machine, and in its passage will be rolled around the mandrel. Tubes of different sizes are formed by using mandrels of greater or less diameter, and adjusting the rollers A to or from each other, as the case may be. If a tapering tube is to be made, the tapered mandrel is used, and the rollers A are inclined to each other by means of the set-screws *a*, and the upper roller, K, is inclined by turning down the nuts H on one of the cross-pieces. If a wire spring is to be made, one end of the wire S is passed through the aperture M in the mandrel, and the wire is wound on the mandrel by turning the mandrel.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for making sheet-metal tubing, the combination, with two rollers journaled in fixed blocks, of a roller journaled in

vertically-movable blocks, springs for pressing the vertically-movable blocks from the other rollers, means for pressing the rollers together, and of a mandrel held loosely between the rollers, substantially as herein shown and described.

2. In a machine for making sheet-metal tubing, the combination, with the rollers A, journaled in fixed blocks C, of the U-shaped frames F, the blocks G, held on the same, the roller K, journaled in the blocks G, the springs J, surrounding the prongs of the frames, and of a mandrel held loosely between the rollers, substantially as herein shown and described.

3. In a machine for making sheet-metal tubing, the combination, with the rollers A, journaled in fixed blocks C, of the U-shaped frames F, the blocks G, held on the ends of the frames F, the springs J, surrounding the prongs of the frames F between the blocks C and G, the loose mandrel L, held between the rollers A and K, a treadle or foot-lever pivoted to the frame of the machine, and the rods Q, connecting the said foot-lever with the frames F, substantially as herein shown and described.

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