L. WILDERMUTH.

Wire-Coiling Machine.

No. 213,482 **Patented Mar. 18, 1879.**

Fig. 1.

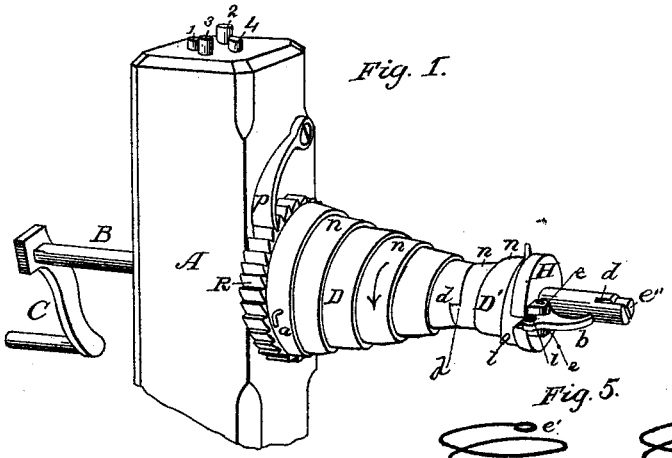


Fig. 5.

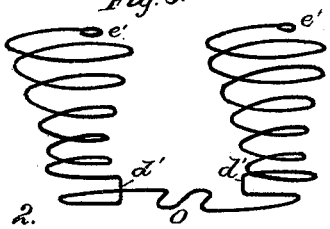


Fig. 6.

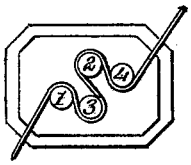


Fig. 2.

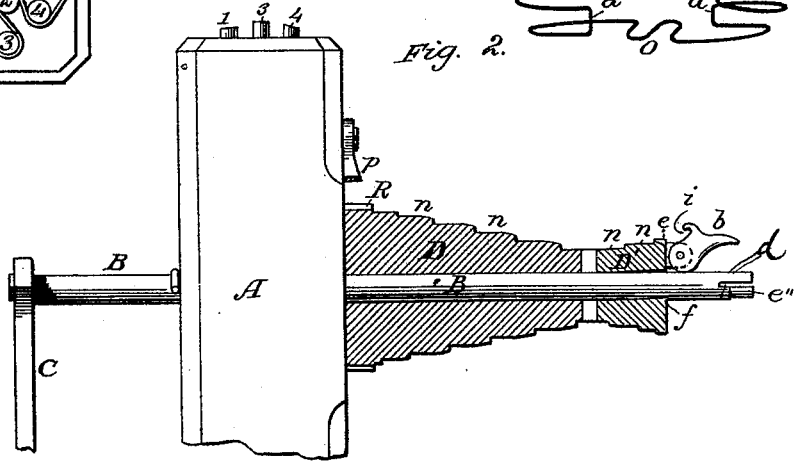


Fig. 4.

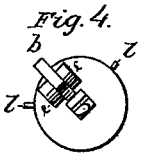
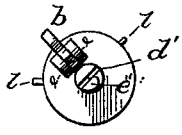


Fig. 3.



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UNITED STATES PATENT OFFICE.

LA FAYETTE WILDERMUTH, OF NEW LEXINGTON, OHIO.

IMPROVEMENT IN WIRE-COILING MACHINES.

Specification forming part of Letters Patent No. **213,482**, dated March 18, 1879; application filed February 11, 1879.

To all whom it may concern:

Be it known that I, LA FAYETTE WILDERMUTH, of New Lexington, Ohio, have invented a new and Improved Machine for Coiling Wire Bed-Springs; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my machine. Fig. 2 is a side elevation, with the coiling-drums in section. Figs. 3 and 4 are details to be referred to. Fig. 5 shows the spring this machine is specially adapted to make. Fig. 6 shows the bending-pins on the top of the post.

My invention relates to that class of spring-coilers for making double-truncated springs wherein the coiling spool or drum is divided, to enable the operator to readily remove the spring after it is coiled; and it has for its object to facilitate the coiling of such springs and bending the wire at such various points as are necessary to produce the spring.

My invention consists in a combination and arrangement of a coiling-spool, divided in the center, with certain holding devices for the wire and bending devices to make necessary bends in the wire after the springs are formed, as hereinafter more fully described and claimed.

In order that those skilled in the art may make and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A is a post having proper supports and braces, and bearing a shaft, B, provided with a crank, on which is a coiling-spool, constructed of two castings, the general outline of which is that of two frusta of a cone, D D′, joined at their apices by means of an interlocking cam or offsets, *d d*. The spool is divided, to enable the operator to remove the spring, for the reason that, the spool being of smallest diameter at the junction of the frusta of the cone, the small coils at the center would not pass over head H, and hence it has to be withdrawn by means of the division in it, as stated. The large end of the casting D is provided with a ratchet, R, which lies contiguous to the post, and the post bears a pawl, *p*, which drops into this ratchet. The casting D′ has on it a head, H, and two lugs, *l l*. The surface of the spool is divided off into a spiral offset or series of steps, *n n*, on which the wire is coiled. The casting D′ must be fixed on shaft B while the wire is being coiled, and should be readily loosened when the spring has to be taken from the spool. This requires a fastening device for casting D′, which I make as follows: On the head H are two ears, *e e*, in which is pivoted a hook, *b*, whose lower end acts as an eccentric cam when it is thrown open, and holds the piece D′ firmly to the shaft by crowding it against a portion of the shaft, which is flattened at *f*, as seen in Fig. 2. The bend *i* in hook *b* is of a proper size to seize the wire when the hook is thrown over on the spool. The wire then rests between the head H and the lugs *l l* and beneath the hook *b*. The hook *b* holds the the wire close against the piece D′, and the lugs *l l* prevent the spring from drawing up toward casting D while the wire is being cut.

The end of the shaft opposite the crank is bifurcated, and a portion, *e″*, of one side of the bifurcation is cut down into a sort of semi-elliptical shape, and serves as a wrench to bend the eyes *e′ e′* at the ends of the wire. Another portion of one-half of the shaft at *d* is left intact to make the bends *d′ d′*. (Seen in Fig. 5.)

The casting D is provided on the offset nearest the post with a hook, *a*, over which passes the eye *e′* when the coiling of the spring is commenced.

If desired, the portion of the shaft on which rests the casting D′ may be made square, and the opening in the casting to correspond therewith, as seen in Fig. 4, which will prevent D′ from turning on the shaft, and consequently will lock the entire spool.

In order to make the S-shaped bend O in the portion of the wire connecting the two springs, I place in the top of the post A, four pins, 1, 2, 3, and 4, around which the wire is bent, as seen in Fig. 6. Two of these pins, 1 and 4, are shorter than the other two, and are provided with beveled faces, as seen in Figs. 1 and 2, whereby the wire, when brought around pins 2 and 3, is passed over pins 1 and

4 by gradually riding up on the beveled faces of the pins, and the wire is thereby prevented from slipping over and off of pins 2 and 3.

The operation of making the spring is as follows: The wire is fed from a reel. The end of the wire is inserted in the bifurcation in the end of the shaft and bent around to form an eye, *e'*. The eye is hooked over pin *a*, and by means of the crank the spool is turned and the wire coiled around it until the wire lies coincident with and against head H, and between it and lugs *l l*. The hook *b* is turned over, so as to lie on casting D' and seize the wire and hold it down against the casting while a proper length is cut from the reel of wire to form the other coil of the spring. Hook *b* is then raised and the casting D' removed from the shaft, leaving the spring. This removal of D' allows sufficient rebound of the spring to unhook it from pin *a*, so that the spring can be withdrawn from casting D. Casting D' is replaced on the shaft, and the other coil of the spring is made in precisely the same way from the opposite end of the wire. The bends *d' d'* are made by inserting the wire into the bifurcation at *d* and bending it around the unreduced fork of the shaft. The S-shaped bend in the center of the connecting portion of the wire is made by bending the wire around pins 1, 2, 3, and 4, as seen in Fig. 6.

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

1. In combination with the coiling-spool D D', the hook *b* and lugs *l l*, for securing the wire, as set forth.

2. In a wire-spring coiling-machine, the shaft B, having its end bifurcated, one fork, *e*, being cut down to constitute a mandrel to form the eye *e'*, and the other fork shaped as a mandrel to make the bend *d'*, as shown and described.

3. In a wire coiling and bending machine, the pins 2 and 3, in combination with the shorter pins, 1 and 4, provided with beveled faces, substantially as described.

LA FAYETTE WILDERMUTH.

Witnesses:
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W. F. MORSELL.