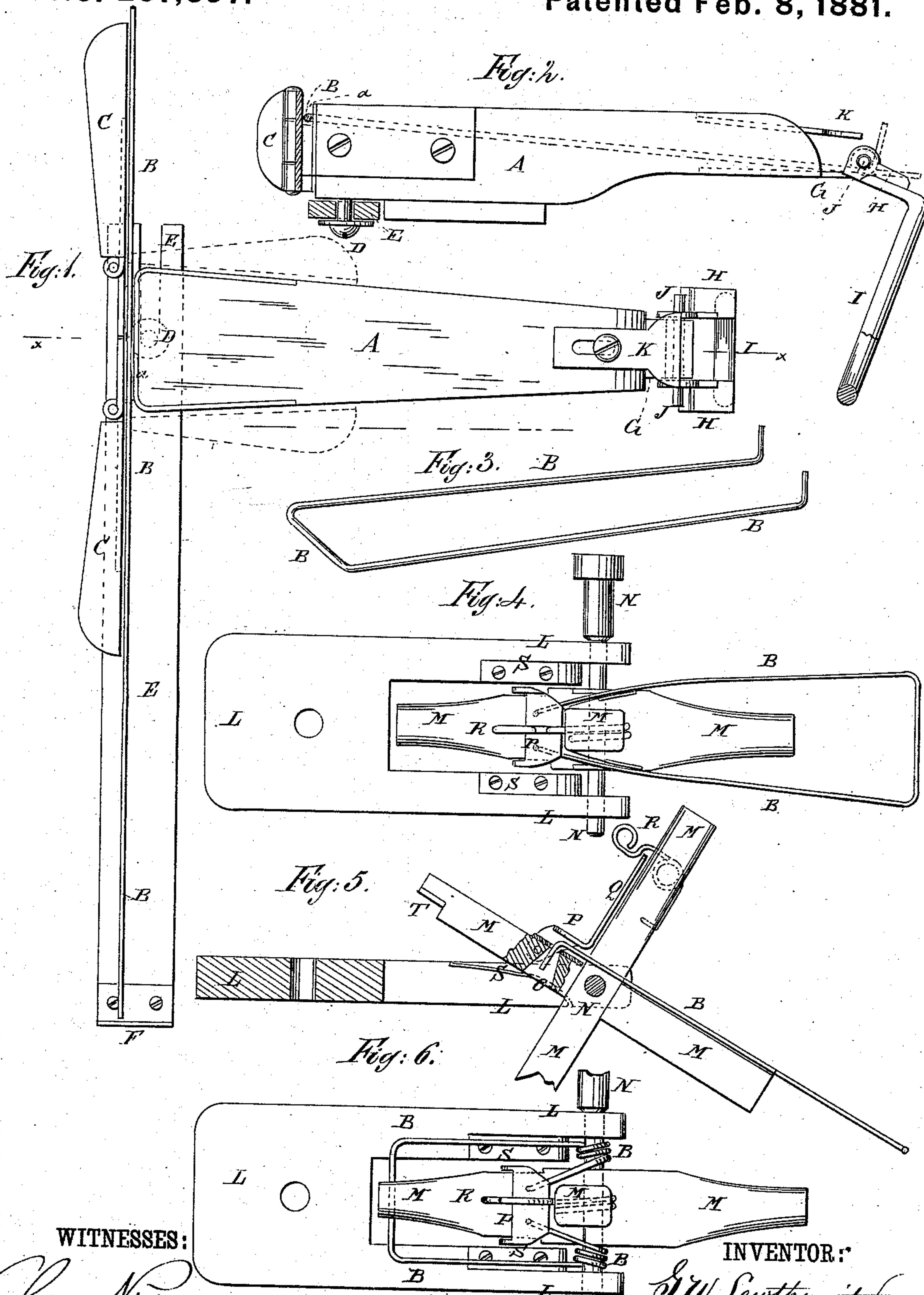


(Model.)

G. W. LEWTHWAITE.  
Machine for Forming Wire Springs.  
No. 237,397.  
Patented Feb. 8, 1881.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE W. LEWTHWAITE, OF FORT MILLER, NEW YORK.

## MACHINE FOR FORMING WIRE SPRINGS.

SPECIFICATION forming part of Letters Patent No. 237,397, dated February 8, 1881.

Application filed July 12, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, GEORGE WALTER LEWTHWAITE, of Fort Miller, in the county of Washington and State of New York, have invented a new and useful Improvement in Machines for Forming Wire Springs, of which the following is a specification.

Figure 1 is a plan view of the part of the improvement that bends the wire into shape to be coiled. Fig. 2 is a sectional side elevation of the said part, taken through the line  $x$ , Fig. 1. Fig. 3 is a perspective view of the wire after being bent. Fig. 4 is a plan view of the part of the improvement that coils the wire, showing the wire in place ready to be coiled. Fig. 5 is a sectional side elevation of the said part. Fig. 6 is a plan view of the said part, showing the wire coiled.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish machines for forming wire springs for the rat or animal traps for which Letters Patent No. 221,329 were granted to me November 4, 1879, and for other uses, which shall be so constructed as to form the springs accurately and rapidly, and which shall be simple in construction and easily operated.

The invention consists in constructing a machine for forming wire springs of a base-block having a rabbet to receive the wire, an adjustable gage for regulating the position of the wire, hinged wings for bending the wire into a loop, a hinging-plate, a hinged plate having lever, a pivot, and a stop-plate for bending the ends of the looped wire into hook shape, a slotted base-block having shoulders, a spoke-wheel having holes to receive the hook ends of the looped wire, a stop-shoulder to engage with the loop of the wire, a hinged plate having arm and a spring-catch for locking the hook-shaped ends of the wire in place, and a detachable pivot-pin for the arms of the looped wire to be coiled around, as will be hereinafter fully described.

A represents a base-block of any convenient thickness, and which is slightly tapered from its forward to its rear end. The forward end and the forward part of the sides of the block A are faced with iron, and the upper edge of the forward end is rabbeted to form a shoulder,  $a$ , to receive the wire B.

To the forward corners of the block A are hinged the ends of two wings, C, the inner ends of which are made straight, so that they may be swung out into line with each other and at right angles with the length of the block A, and swung in against the sides of the said block A.

To the lower side of the forward end of the block A is attached a clamping-screw, D, which passes through a slot in the inner end of the bar E. The bar E projects at right angles with the length of the block A, and to its outer end is attached the lower arm of an angle-plate, F, the upper arm of which projects at right angles with the said bar E, to serve as a gage-stop in inserting the wire B.

To the lower side of the rear end of the block A is secured a plate, G, which is slotted to receive the fastening-screws, so that it can be moved out and in, as may be required.

To the outer end of the plate G is hinged a plate, H, to the middle part of which is attached, or upon it is formed, a lever, I. The lever I is bent downward at an angle to keep it out of the way. The ends of the plate H and of its pivot J project so as to receive the ends of the wire B between them. The plate H, when turned up, is stopped in a vertical position, or nearly in a vertical position, by striking against the edge of the plate K, secured to the upper side of the rear end of the block A. The plate K is slotted longitudinally to receive the fastening-screws, so that it may be adjusted to correspond with the adjustment of the hinging-plate G.

With this construction, when the machine is to be used the gage E F is adjusted to stop the wire B in such a position that the arms of the wire, when bent, will be of equal length, and the plates G K are so adjusted as to form hooks of any desired length upon the ends of the looped wire B.

In using the machine the wings C are swung out at right angles with the length of the block A, the wire B is inserted in the rabbet  $u$  of the said block A, with an end resting against the stop-plate F of the gage-bar E, and the wings C are swung in against the sides of the block A, bending the wire B into U form. The ends of the wire B are then inserted between the ends of the plate H and of its pivot J, and the said plate H is turned up into a vertical



position, or until it strikes against the stop-plate K, bringing the wire B to the form shown in Fig. 3.

L is a base-block, in the rear part of which is formed a hole to receive the bolt by which it is secured to a bench or other suitable support, with its forward end projecting, or with its forward end over a slot in the said bench or support. The forward middle part of the base-block L is cut away or is slotted, and to and between the ends of the arms of the said block is pivoted a four-armed spoke-wheel, M, by means of a detachable pin, N. In the inner part of one of the spokes or arms of the wheel M are formed two holes, O, to receive the hook-shaped ends of the wire B, the loop of the said wire passing around the adjacent arm or spoke, resting upon the pin N, and projecting, as shown in Figs. 4 and 5.

P is a small plate, which is hinged, by means of lugs formed upon its rear corners, to the arm or spoke of the wheel M in such a position that it can be turned down over the hook-shaped ends of the wire B to hold the said ends in the holes O. The forward part of the plate P, or an arm, Q, formed upon the said plate, projects upward at right angles, so as to rest against the adjacent arm or spoke of the wheel M, as shown in Fig. 5, where it is locked in place by a spring-catch, R, attached to the said adjacent arm or spoke of the wheel M.

Upon the inner sides of the arms of the slotted base-block L are formed shoulders S, for the arms of the wire B to rest upon, and which are faced with metal to prevent them from being worn by the said wire B. Upon the opposite side of the end of the arm or spoke of the wheel M from the plate P is formed a shoulder, T, to receive the loop or bend of the wire B and serve as a gage or stop to the said wire.

In using the machine the hook-shaped ends of the wire B are inserted in the holes O, and secured in place by the plate P Q and spring-catch R. The spoke-wheel M is then turned, coiling the arms of the wire B around the pin N, at the opposite sides of the spoke-wheel M, the arms of the said wire resting upon and being supported against the pressure by the shoulders S until the movement of the said

wheel M is stopped by the loop of the wire B engaging with the shoulder T of the arm or spoke of the said wheel M, as shown in Fig. 6. The pin N is then withdrawn and the completed spring removed.

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

1. A machine for forming wire springs, constructed substantially as herein shown and described, consisting of the block A, the hinged wings C, the adjustable gage E F, the adjustable hinging-plate G, the hinged plate H, having lever I, the pivot J, and the adjustable stop-plate K, for bending the wire into loop form with hook-shaped ends, and the slotted base-block L, having shoulders S, the spoke-wheel M, having holes O and shoulder T, the hinged locking-plate P, having arm Q, and the spring-catch R, for coiling the arms of the looped wire, as set forth.

2. In a machine for forming wire springs, the combination, with the base-block A, having rabbet a, of the hinged wings C, the adjustable gage E F, the adjustable hinging-plate G, the hinged plate H, having lever I, the pivot J, and the adjustable stop-plate K, substantially as herein shown and described, whereby the wire is bent into loop form with hook-shaped ends, as set forth.

3. In a machine for forming wire springs, the combination, with the slotted base-block L, having shoulders S, of the spoke-wheel M, having holes O and shoulder T, the pivoting-pin N, the hinged locking-plate P, having arm Q, and the spring-catch R, substantially as herein shown and described, whereby the arms of the looped wire are coiled to form a spring, as set forth.

4. In a machine for forming wire springs, the combination of the following elements, viz: a mechanism for bending a wire into loop form with hook-shaped ends, and a mechanism for coiling the arms of the looped wire to form the spring, substantially as herein shown and described.

GEORGE WALTER LEWTHWAITE.

Witnesses:

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JOHN WAGMAN.