2 Sheets—Sheet 1.

C. E. GREEN.

Wire-Coiling Machine.

No. 204,030. Patented May 21, 1878.

Fig. 2.

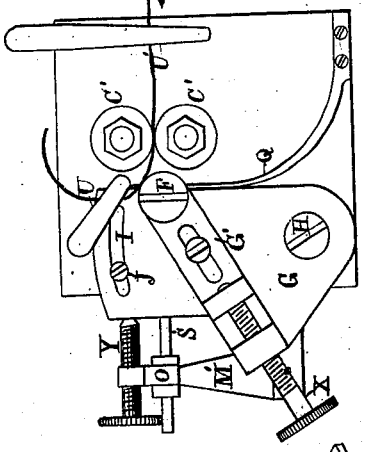


Fig 2a

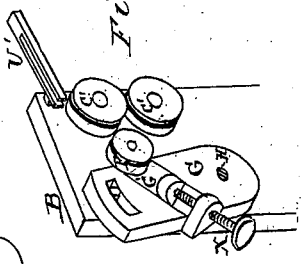
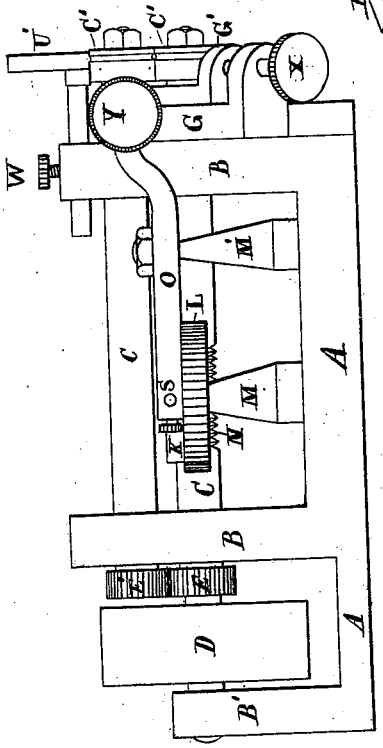


Fig. 1.



Attest:
P. J. Inslee
J. F. Inslee

Inventor.
Charles E. Green.
By O. Drake, Atty.

2 Sheets—Sheet 2.

C. E. GREEN.

Wire-Coiling Machine.

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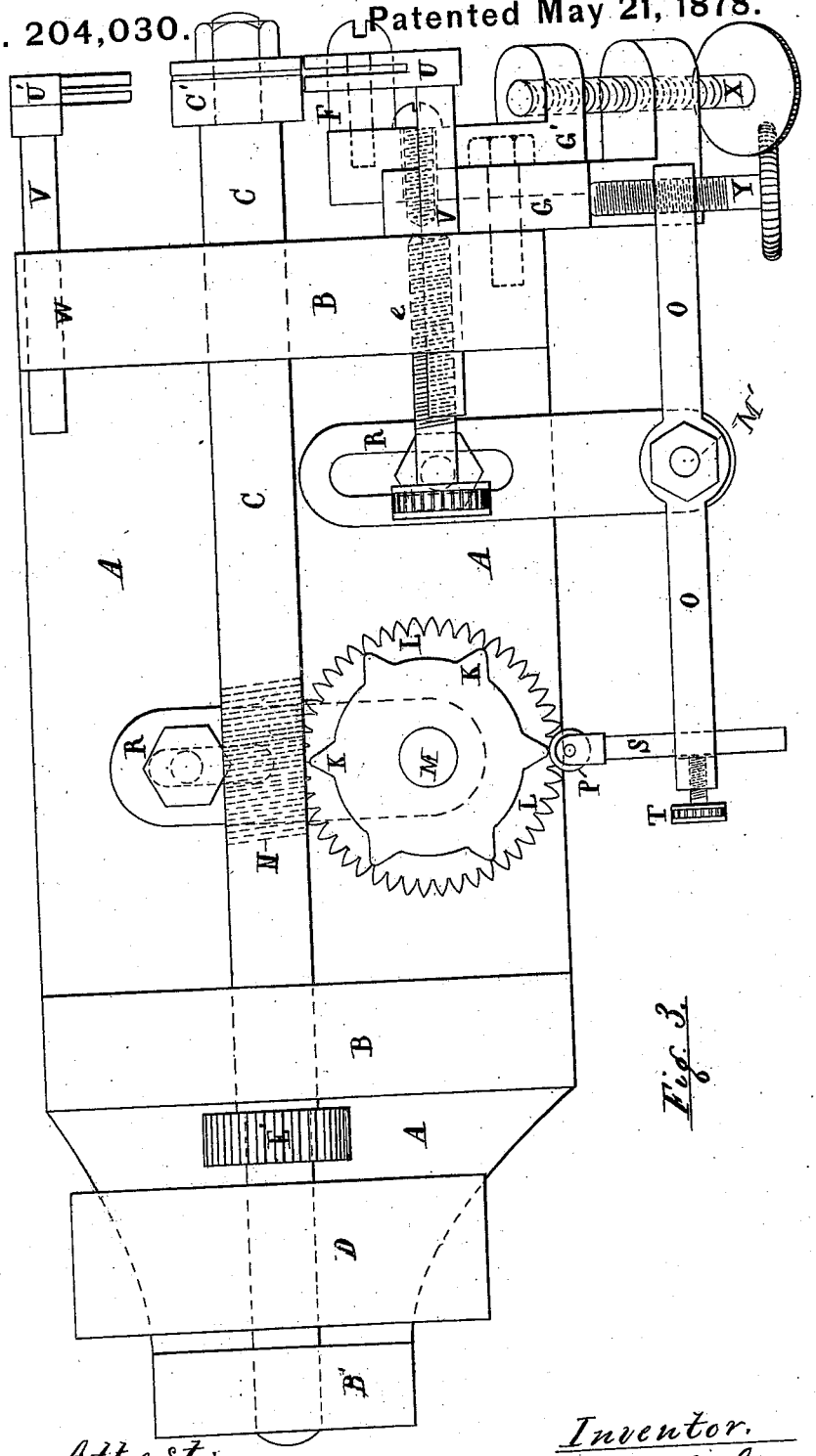

Fig. 2.

Attest:

P J Inslee

J F Inslee

Inventor.

Charles E Green.

By O Drake, Atty

UNITED STATES PATENT OFFICE.

CHARLES E. GREEN, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN WIRE-COILING MACHINES.

Specification forming part of Letters Patent No. **204,030**, dated May 21, 1878; application filed April 17, 1878.

To all whom it may concern:

Be it known that I, CHARLES E. GREEN, of the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Bending Wire into Spiral Coils; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to machines for forming spiral springs varying in pitch and diameter, and consisting of carrying-rolls, gage-roll, carried by a vibrating frame, guides, and operating appliances, constructed and arranged as described hereinafter, to effect the desired result.

In the drawing, Figure 1 shows a side view of my machine for coiling springs; Fig. 2, a front view of the same; Fig. 2ª, a perspective diagram, illustrating the position of the rollers; and Fig. 3, a plan, drawn on a larger scale.

A is the bed of the machine, provided with two heads, B B, and a support, B′, for the driving-pulley bearing. C C are the drawing-roll shafts, the lower of which is supplied with a driving-pulley, D, and a gear, E, for driving the other shaft by gear E′.

The shafts C C revolve in the heads B, and carry the wire continuously into the machine by the carrying-rolls C′ C′.

The wire is bent to the required curve by gage-roll F, which is carried on a rocking frame, G, pivoted to the front of the head B nearest the rolls C′. Said frame G, as will be observed, can be, when necessary, adjusted laterally from head B by means of set-screw *e* and the screw J and pivot H, which serves to automatically vary the pitch of the required spiral; or the roll F may be otherwise so adjusted as to produce the same result, as will be obvious.

Roll F is secured to a slide, G′, which is constructed to move upon frame G, so that the roll F can be varied in its distance from the rolls C′. H is the pivot of frame G, secured to the head B near its lower edge. I is a curved slot in the upper edge of frame G, through which a screw, J, passes into head B, thus guiding the frame when rocked upon pivot H by connections to a cam, K, which is secured to a worm-wheel, L, by the side of the lower shaft C, midway between the heads B.

A stud, M, supports the cam and wheel L, the wheel being in contact with a worm or screw, N, with which shaft C is provided. A similar stud, M′, near the front head B, supports a lever, O, one end of which carries an adjustable roller, P, in contact with the cam K, and the other end a screw, bearing against the side of frame G near slot I. By means of lever O the cam can be made to impart any desired motion to the frame G, thereby moving roll F gradually toward the drawing-rolls C′, or permitting the roll to recede by the action of a spring, Q, which is secured to the front of head B, and keeps frame G forcibly pressed against the lever O. Studs M and M′ are each secured to the bed A by a slotted foot, R, so that they may be adjusted to any desired position. S is a carrier for roll P, and is clamped to one end of lever O by a set-screw, T, so that it may be set in any required position. U U′ are slotted or forked guides for leading the wire to the rolls C′ C′, the roll F merely controlling the curve which the wire shall possess after passing through the rolls C′.

The rolls are made each with a groove to guide the wire as it passes through them, and the leading guide, U, being set a little nearer to head B than the groove in rolls C′, the wire is bent a little sidewise in its passage to the rolls, and the pitch of the coiled spring is thereby determined. The guide U receives the wire after it is bent by the rolls, and aids still further in forming the proper pitch or distance between the coils. Both guides are carried on studs V, which are secured in head B by set-screws W, and are thus adjustable to any extent required.

The slide G′ is furnished with an adjusting-screw, X, and the end of lever O in contact with the side of frame G′ is provided with an adjusting-screw, Y.

The cam K, being secured to the worm-wheel L, has a slow rotary motion imparted to it by the worm on shaft C.

From the construction described, it is obvious that any desired rocking motion can be imparted to frame G and the roll F thereon.

The cam is shown in Fig. 3 with six teeth,

each of which would gradually advance and withdraw the gage-roll from rolls C′, and produce a spring shaped like an hour-glass, the form usually employed in upholstering. By disconnecting the cam from the wheel L and substituting one of another shape, any other form of spring could be as readily produced.

By securing the frame G rigidly to head B, springs of uniform diameter and pitch can be produced.

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

1. The combination, with the pivoted frame G, of the adjustable slide G′, carrying the gage-roll F, as set forth.

2. The combination of the shafts C C, carrying the rolls C′ C′, the adjustable worm-wheel L, gearing with a worm on one of the shafts, cam K, lever O, and pivoted frame G, carrying the roll F, all as set forth.

In testimony that I claim the foregoing as my own I hereto affix my signature in presence of two witnesses.

CHAS. E. GREEN.

Witnesses:

OLIVER DRAKE,

P. J. INSLEE.