

C. A. & S. W. Young.

Making Wire Furniture Springs.

N^o 21,635.

Patented Sept. 28, 1858.

Fig. 3.

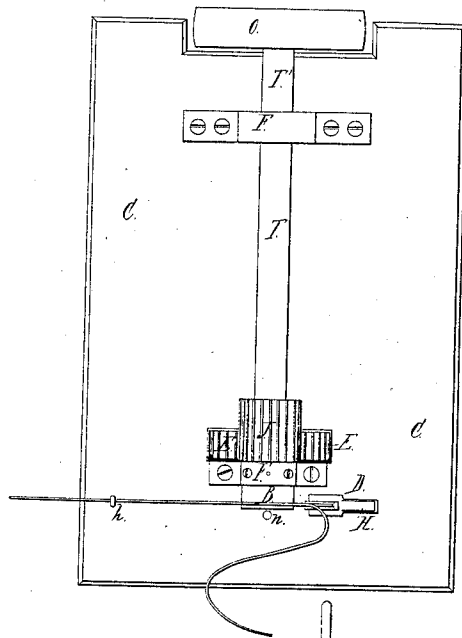
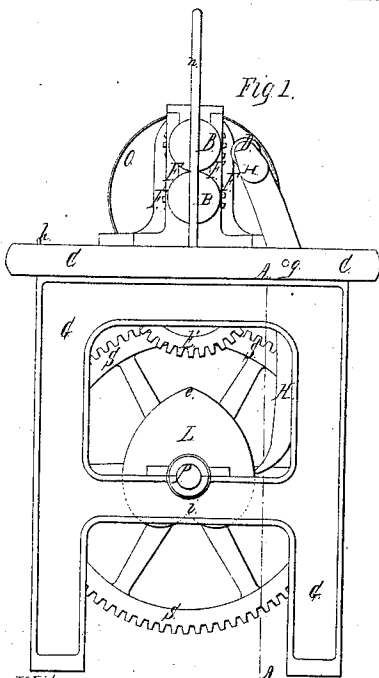


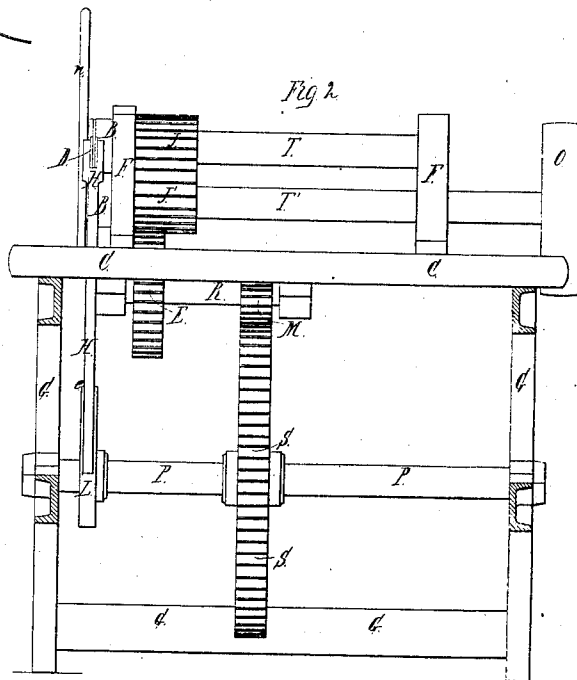
Fig. 1.



Witnesses:

*James A. Brownell.
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Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES A. YOUNG AND SOLOMON W. YOUNG, OF PROVIDENCE,
RHODE ISLAND.

IMPROVED MACHINE FOR MAKING WIRE SPRINGS FOR FURNITURE.

Specification forming part of Letters Patent No. **21,635**, dated September 23, 1858.

To all whom it may concern:

Be it known that we, CHARLES A. YOUNG and SOLOMON W. YOUNG, of Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Machine for Making Biconical Wire Springs for Furniture, &c.; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a front elevation of the machine. Fig. 2 is a side elevation and section through the line A A of Fig. 1. Fig. 3 is a plan of the machine, the same letters referring to like parts in the different figures.

G G is the frame of the machine, of cast-iron, with a slab, C, of wood or iron, upon the top of the same. Upon the table thus formed are placed and secured, in a proper manner, the upright jaws F F, of iron, in which are fitted metallic boxes *f f*, in which the shafts T T' revolve in connection by the gears J J' thereon.

Upon the end of each shaft, at the front of the machine, are secured two rolls, B B, of iron or steel, constructed in the ordinary manner of rolls for rolling or drawing wire, having a rounded groove sunken in each to the depth of half the diameter of the wire to be used.

At the right of the rolls B B is the roll D in the end of the lever H. This roll also has a groove formed in its face, but of a greater width and depth than those of B B. This roll gives direction to the wire in coiling the same.

The lever H swings upon a pivot, *g*, and projects downward from the table. It is slightly curved at the lower end, and has a knife-edge formed thereon, which bears against and is acted upon by the heart-shaped cam L, which, as it revolves with the shaft P, on which it is secured, imparts a vibrating motion to the lever, which causes the roll D to approach and recede from the rolls B B at the proper time, for purposes hereinafter explained.

The cam-shaft P is revolved at a proper relative speed with the rolls B B by means of the gear S and the intermediate gears, M and E, on the shaft R, Fig. 2, the latter of which engages with the gear J' on the shaft T', which is revolved by means of a belt on the pulley O.

Operation: The end of the wire is passed

through the eye *h* in the table, and thence between the rolls B B until it meets the roll D, which at the commencement of the operation has receded from the rolls B B to the extreme distance allowed by the cam L, the knife-edge on the lever bearing against the point *i*, Fig. 1, nearest the center of motion of the cam. The rolls continue to revolve, and the wire being drawn through the same passes to the groove in the roll D, which causes it to curve over against the upright rod *n*, and is thus coiled. The roll D gradually approaches the rolls B B by the action of the cam upon the lever, thereby lessening the diameter of each coil until the knife-edge has arrived at the point *e* of the cam, when the roll D is made to gradually recede, thus allowing the coils to increase in diameter as they are formed, until the knife-edge of the lever again arrives at the point *i* of the cam, when one spring is completed and another commences to form, and so on, the conical form being imparted by the approaching and receding of the roll D by the action of the heart-shaped cam L through the lever H. This cam can be applied for this purpose in a number of forms, differing from each other only in point of convenience or fitness with respect to the construction of the other parts of the machine. The roll D may be mounted on a carriage moving in or upon guides or ways on the table, and subjected to the action of the heart-cam directly; or the cam itself may be applied directly in place of the roll D, either method serving to produce a like result; but the method herein described is preferred to others, as being more simple and equally effective.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A single grooved roll, D, in combination with the upright rod *n*, to effect the coiling of the wire.

2. Varying the diameter of the coils to produce a biconical form in the spring by causing the roll D to approach and recede from the coiling-rolls in a direct or curved line horizontally, substantially as specified.

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Witnesses:

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