(No Model.)

J. MEILI.

MACHINE FOR WINDING SPRINGS.

No. 458,034. Patented Aug. 18, 1891.

Fig: 1.

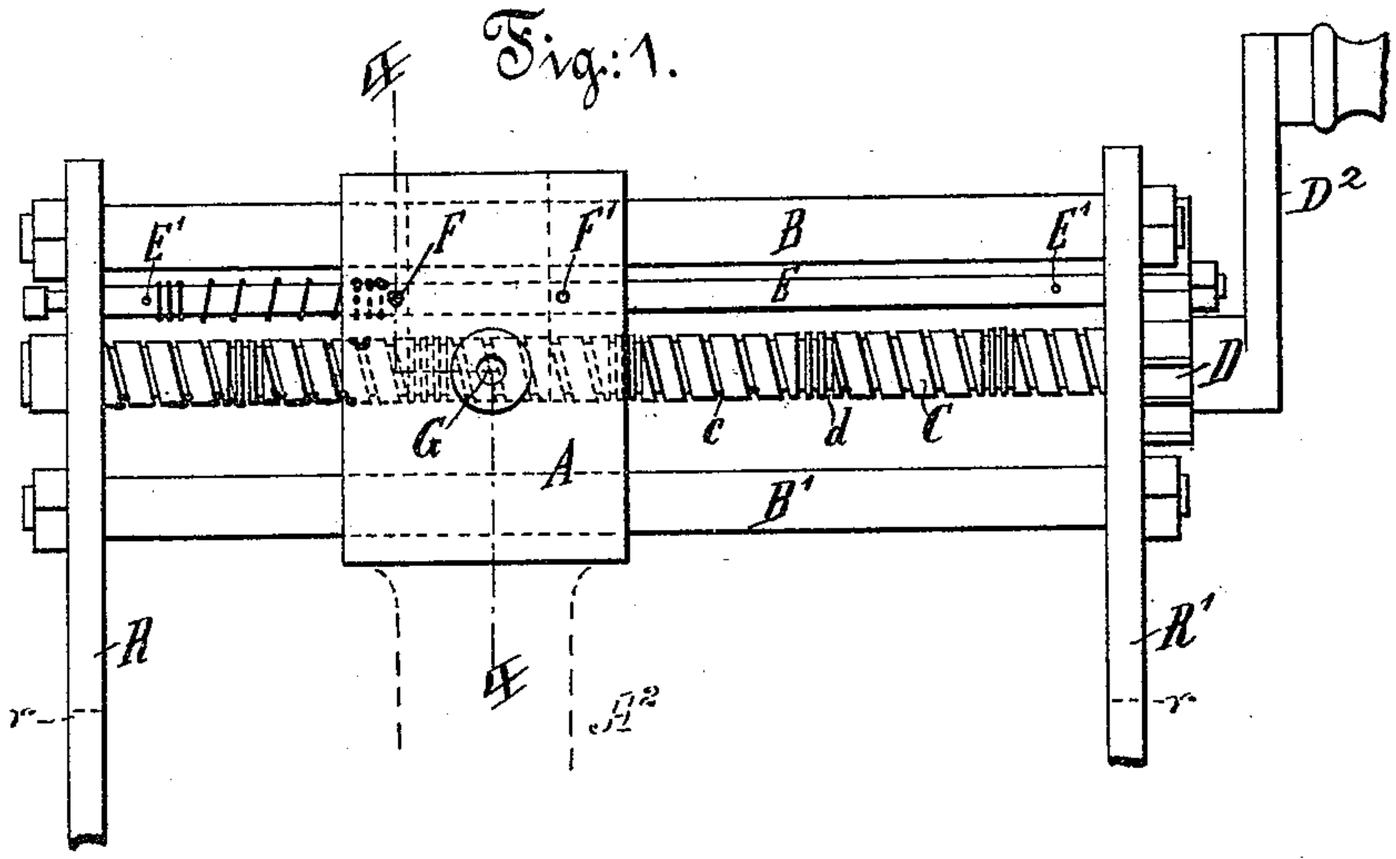


Fig: 2.

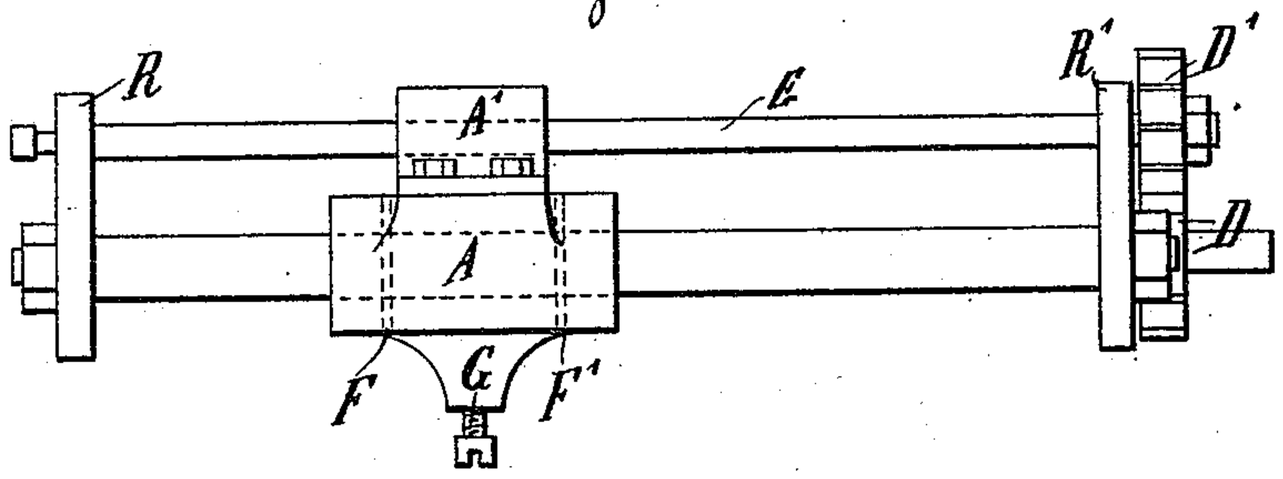


Fig: 3.

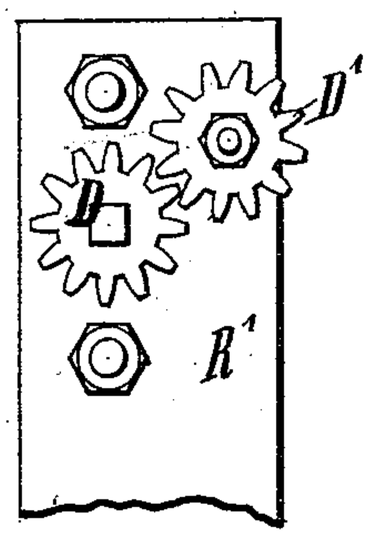
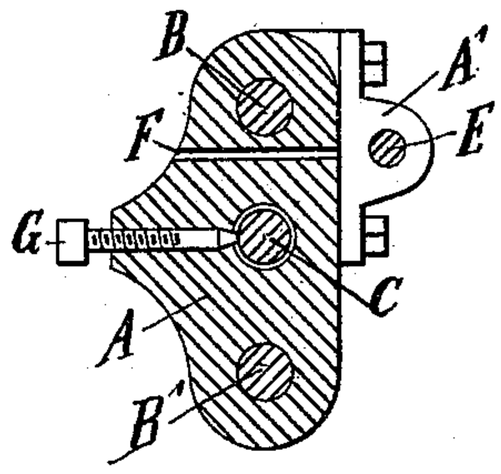


Fig: 4.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR WINDING SPRINGS.

SPECIFICATION forming part of Letters Patent No. 458,034, dated August 18, 1891.

Application filed January 6, 1891. Serial No. 376,833. (No model.) Patented in Switzerland July 15, 1890, No. 2,474.

To all whom it may concern:

Be it known that I, JACOB MEILI, of Hemishofen, Switzerland, have invented certain new and useful Improvements in Machines for Winding Springs, (which invention has been patented in Switzerland, No. 2,474, dated July 15, 1890,) of which the following is a specification.

This invention relates particularly to machines for winding springs of varying pitch and aims to provide a simple and effective machine of this character.

To this end in carrying out my invention I provide a core on which the spring is wound, and a wire-guide for delivering the wire to the core, and means for imparting the necessary relative movement to one or both of said parts during the winding of the spring.

In the accompanying drawings, Figure 1 is a front elevation of my improved spring-winding machine. Fig. 2 is a plan thereof. Fig. 3 is a side elevation thereof, and Fig. 4 is a cross-section in the line 4 4 of Fig. 1.

I will now describe the preferred form of my invention, referring to the drawings, in which let R R′ indicate the supports of the machine, B B′ the guide-bars, C the feed-screw, E the core on which the spring is wound, and A the wire guide or slide. The two side frames R R′ support the feed-screw C and the core-spindle E and are united by the guide-bars B B′. Upon the feed-screw C the threads form a series of screws *c*, of which the adjacent series are connected together by screw-threads *d* of less pitch than that of the screw-threads *c*. The feed-screw C passes through and supports the wire guide or slide A, which is prevented from turning by the guide-bars B B′, which also pass through the slide A. The latter is geared to the feed-screw C, and is required to conform in its lengthwise movement to the varied pitch of the screw-threads *c d*, this being best accomplished by the screw G, which it carries and the point of which enters the thread-cuts of the feed-screw C. The screw G is screwed into the slide A. The two spur-wheels D D′ upon the end of the feed-screw C and the core-spindle E, respectively, transmit the rotation of the former to the latter, which is situated a little higher than the feed-screw C. The feed-screw C is shown as driven by a crank D^2. The slide A has two small holes F F′ opposite to the core-spindle E. The latter is guided by a box A′, fastened to the slide A, and which may be changed according to the diameter of the particular spindle E used. The metal wire of which the spring is to be made is pushed through one of the holes F F′ and through a cross-hole E′ of the core-spindle E. The feed-screw C is then rotated, thereby feeding the slide A lengthwise and causing the spindle E to rotate by reason of the gears D D′, whereupon the wire is wound round the said core-spindle E in coils, the pitch of which corresponds exactly with that of the threads of the feed-screw C. In this manner a spring with varied pitch is produced. By replacing the feed-screw C by another one with differently-cut screw-threads the most widely-different kinds of springs may be produced; also, the pitch of the spring to be produced can be varied in relation to the pitch of the screw-threads of the feed-screw C by using spur-wheels D D′ of different diameter in place of those of similar diameter.

I do not limit myself to the particular form or construction herein set forth as the preferred form of my invention, since this may be variously modified as circumstances or the skill of those skilled in the art may dictate without departing from the essential features of my invention. For example, it must be understood that the wire and also the core-spindle E may be of any cross-section, as round, square, oval, or otherwise, or of any diameter, for producing springs of distinctly-shaped or different forms. Instead of constructing the feed-screw C as the driving-shaft, it may be the driven one and the core-spindle E may be the driving-shaft; or, if desired, the part A may be stationary and the screw C and core E may move, as shown in dotted lines in Fig. 1.

Having described my invention and the manner in which it is carried into effect, what I claim is the following defined novel features and combinations, substantially as hereinbefore set forth, namely:

1. In a machine for making springs of varied pitch, the combination, with a core on which the spring is wound, of a guide for the wire, and

a feed-screw having threads of varying pitch and connected to one of said parts to move it relatively to the other at a varying speed.

2. In a machine for making spiral springs of varied pitch, the combination, with a core on which the spring is wound, of a guide for the wire, constructed to move parallel with said core and having a tooth, as the screw G, and the feed-screw C, constructed with threads of varied pitch and engaging said tooth on the guide, whereby when the screw C is rotated said guide will be moved parallel with said core at a varying speed.

3. In a machine for making spiral springs of varied pitch, the combination, with a rotative core on which the spring is wound, of a guide for the wire, constructed to move parallel with said core and having a tooth, as the screw G, the feed-screw C, engaging said tooth on the guide, and intermeshing gearing on said core and screw C, whereby when the latter is rotated it will move said guide and rotate said core.

4. In a machine for making spiral wire springs of varied pitch, the combination, with a feed-screw C of varied pitch, of the sliding wire-guide A, having tooth or screw G engaging the threads of the feed-screw C, and the rotating core-spindle E, whereby a metal wire guided by the slide A is wound round the core-spindle E in threads with a varied pitch similar to those of the feed-screw C.

5. In a machine for making spiral wire springs of varied pitch, the combination, with a feed-screw C of varied pitch, of the sliding wire-guide A, having tooth or screw G engaging the threads of the feed-screw C, and the rotating core-spindle E, whereby a metal wire guided by the slide A is wound round the core-spindle E in threads with a varied pitch similar to those of the feed-screw C, and a guide-box A′, fitting over the core-spindle E and carried by the slide A for preserving the relative positions of said parts.

6. In a machine for making spiral wire springs of varied pitch, the combination, with a feed-screw C of varied pitch, of the sliding wire-guide A, having tooth or screw G engaging the threads of the feed-screw C, and the rotating core-spindle E, and the spur-wheels D D′, of the same or different diameter, on said feed-screw and core for transmitting the rotation of one to the other.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JACOB MEILI.

Witnesses:
PAUL MAUSER,
ADOLF DRÄSSEL.