

F. SCHAEFER.
 SPRING WINDING MACHINE.
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949,306.

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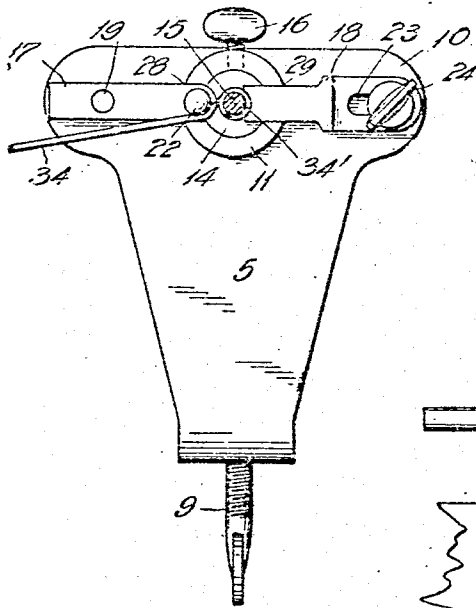


Fig. 2

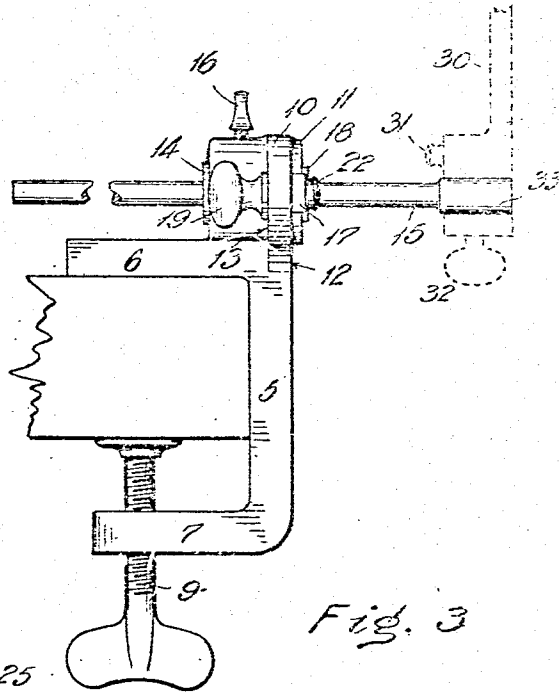


Fig. 3

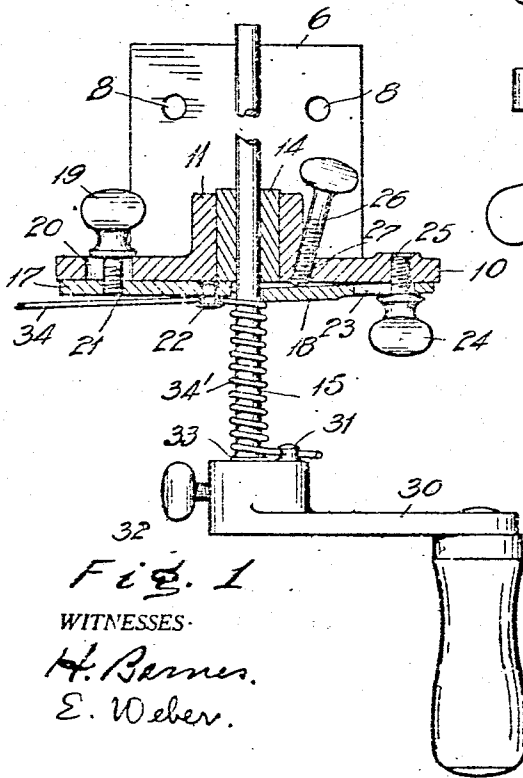


Fig. 1

WITNESSES:

H. Barnes.
 E. Weber.

INVENTOR:

Fred Schaefer

BY

Pierre Barnes
 ATTORNEY.

UNITED STATES PATENT OFFICE.

FRED SCHAEFER OF SEATTLE, WASHINGTON.

SPRING-WINDING MACHINE.

949,306.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRED SCHAEFER, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Spring-Winding Machines, of which the following is a specification.

The object of this invention is the provision of an efficient and inexpensively constructed machine whereby the manufacture of springs is facilitated.

The invention consists in the various, novel features of construction and combinations thereof, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a view, partly in plan and partly in horizontal section, of devices embodying my invention. Fig. 2 is a front elevation of the same with a portion of the winding mandrel removed. Fig. 3 is a side elevation with the operating handle indicated by broken lines.

The reference numeral 5 designates the vertical web of the machine frame and which is formed with integral rearwardly extending flanges 6 and 7. The upper of these flanges, 6, affords a bracket which is adapted to be seated upon the top of a bench, or other suitable support, and is provided with apertures 8 for the reception of securing bolts, when desired. The flange 7 is provided with a tapped hole for a clamping screw 9 whereby the frame is conveniently secured to its support. The web 5 extends, as at 10, to some distance above said bracket and is provided at or near its mid-width with a boss 11 which protrudes beyond the front and rear faces 12 and 13, respectively, of the web extension. Perpendicularly with respect to the front face 12 the boss is bored to accommodate a bushing 14 which, in turn, is bored for a mandrel 15. In some instances, however, the mandrel may be journaled directly in the boss. 16 represents a set-screw for securing said bushing within said boss. Upon opposite sides of the axis of said boss there are adjustably secured to the face 12 horizontally arranged plates 17 and 18. The plate 17 is secured in proximity to its outer end to the frame by a thumb-screw 19 which extends through a slot 20 in the frame and engaging in a tapped hole 21 in the plate. A peripherally grooved stud 22 protrudes forwardly from near the inner end of this plate. The other

plate, 18, in like manner is secured near its outer end by a thumb-screw 24 to the frame, but in this instance the screw desirably passes through a slot 23 in the plate and engages in a tapped hole 25 in the frame.

26 represents a screw extending through a tapped hole 27 in the frame and located so that the point of the screw may impinge against the plate 18 in proximity to its inner end.

The inner ends of both the plates 17 and 18 are respectively housed in recesses 28 and 29 of the boss for the purpose of maintaining the plates in alinement with each other.

The aforementioned mandrel is provided at its forward extremity with a crank-handle 30 which has to the rear of its hub a peripherally grooved stud 31. Advantageously, the crank-handle is arranged to be detachably secured to the mandrel, as by a set-screw 32.

It is proposed to provide mandrels of various diameters so as to afford means to produce correspondingly sized springs. In which event correspondingly bored bushings 14 would likewise be provided and interchanged in the frame as required. In order that a single handle will suffice for different sizes of mandrels, the latter are severally provided with a portion 33 of uniform diameters to interchangeably fit within the socket therefor of the crank-handle.

The operation of the invention may be described as follows: Assuming that the proper size of mandrel 15 and bushing 14 therefor, are in place, as represented in Fig. 1, the end of a wire 34 from which a spring is to be made is first passed under the stud 22 and thence over the mandrel and caught beneath the handle-stud 31. The mandrel is then rotated by manipulating the crank to effect the coiling of the wire, as at 34', about the mandrel, while the stud 22 affords sufficient resistance to cause the wire to closely embrace the mandrel, and thus a spring is produced. By loosening the screw 24 and turning the screw 26 to advance or retract the point thereof with respect to the plate 18 so that the inner end of the latter may be correspondingly moved from or toward the web face 12 more or less lead is given to the wire for making the convolutions of the coil in closer or more open formation. When the plate 18 has been adjusted, through the office of the screw 26, it is secured by the

screw 24. The object of the slots 20 and 23 is to allow of the plates 17 and 18 being adjusted to various sizes of mandrels.

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

1. A spring winding machine comprising a frame, said frame provided with a bored boss, and means for securing said frame to a support, a mandrel rotatable in said bore, two plates disposed in alinement and upon opposite sides of the mandrel, means for securing said plates slidably and in adjustable positions upon said frame, said frame provided with an oblique perforation at a point adjacent said boss, means screw-threaded within said perforation adapted to adjustably move the inner end of one of said plates relatively with respect to the front of said frame, a wire-guiding means provided adjacent the inner end of the other of said plates, means for rotating the mandrel, and a wire-engaging means rotative with said mandrel.
2. A spring winding machine comprising a frame, said frame provided with a bored boss, means for securing said frame to a support, a bushing removably secured in the bore of said boss, a mandrel rotating in said bushing, two plates disposed in alinement and upon opposite sides of the mandrel and respectively arranged for endwise movement, means for adjustably securing said plates to the frame, an oblique perforation provided through said frame contiguous said boss, a screw fitting said perforation, the end

of said screw adapted to bear upon one of said plates for adjustably moving and retaining one end thereof in place relative to the front of said frame, a wire-guiding means provided upon the inner end of the other of said plates, means for rotating the mandrel, and wire-engaging means rotative with said mandrel.

3. A spring winding machine comprising a frame, said frame provided with a bored boss, means for securing said frame to a support, a bushing removably secured in the bore of said boss, a mandrel rotating in said bushing, two plates disposed in alinement upon opposite sides of the mandrel, the plate upon one side of said frame provided with a slot, the opposite side of said frame provided with a slot, means projecting through said slots and arranged upon opposite faces of said frame for adjustably securing said plates to the frame, said frame provided with an oblique perforation adjacent said boss, and means screw-threaded within said perforation and adapted to engage one end of one of said plates for adjustably moving and retaining said end in spaced relation with respect to the front of the frame, a wire-guiding means provided upon the other of said plates and adjacent the end thereof, means for rotating the mandrel, and a wire-engaging means provided on said mandrel.

FRED SCHAEFER.

Witnesses:

H. BARNES.

N. E. FISHER.