

No. 755,005.

PATENTED MAR. 22, 1904.

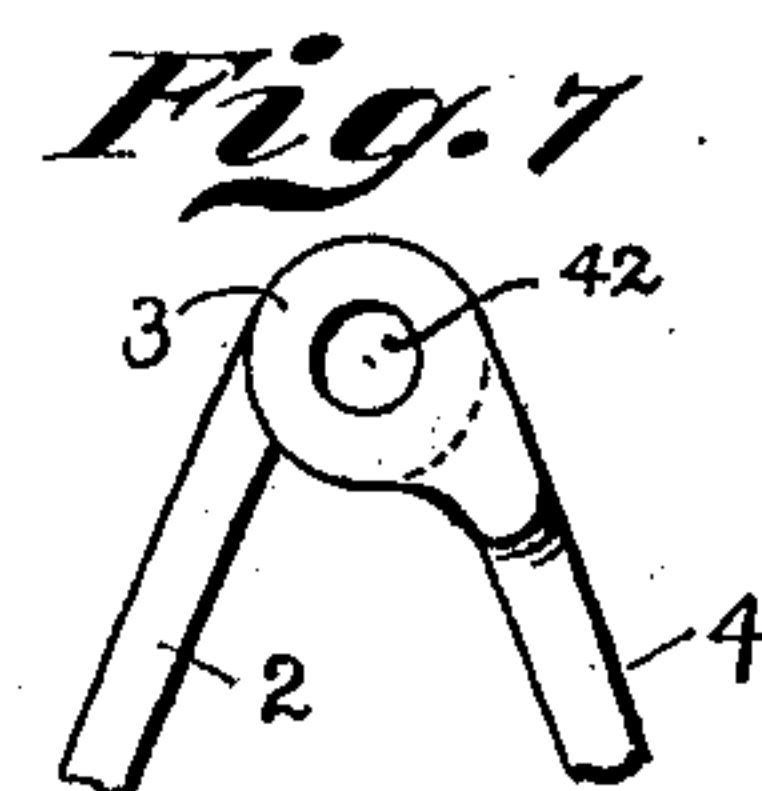
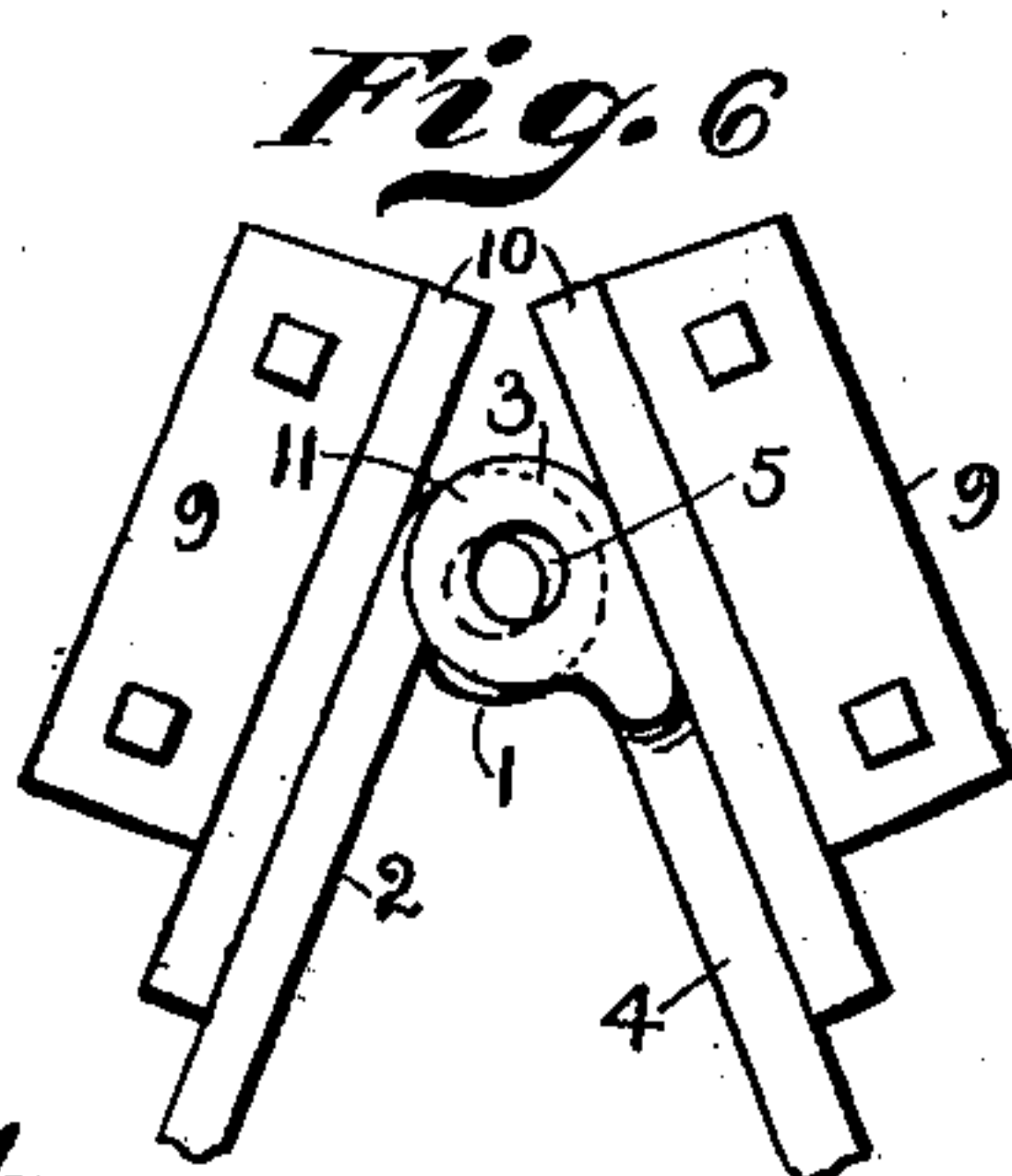
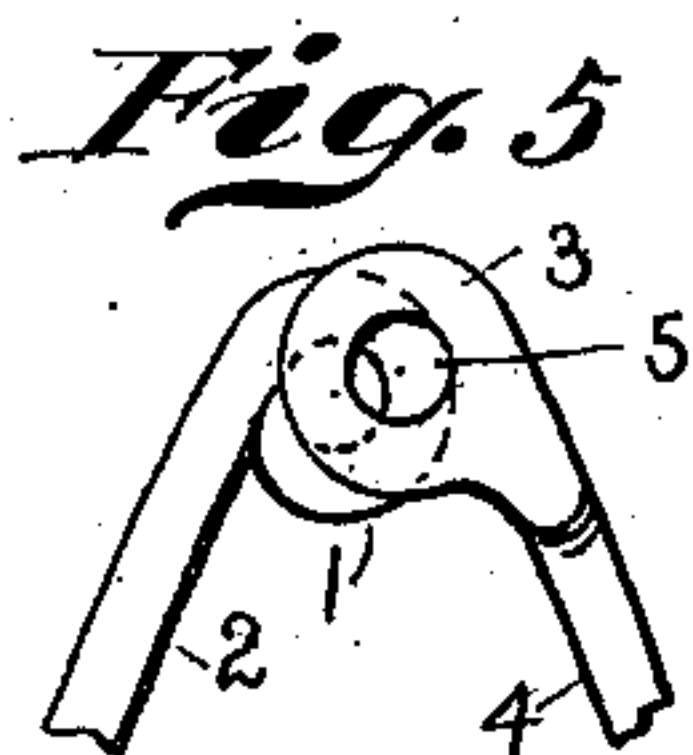
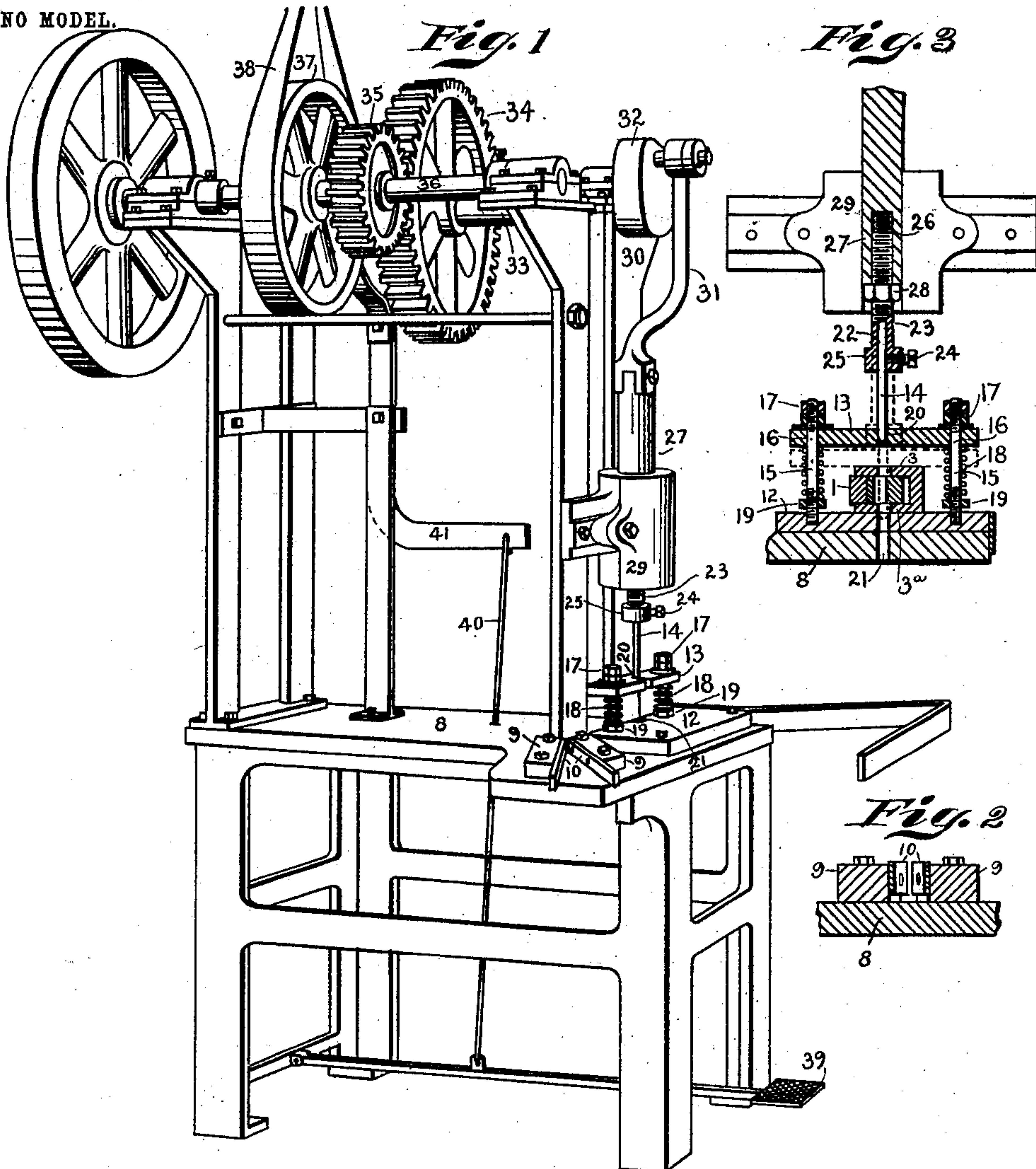
C. F. SHOEMAKER, DEC'D.

D. L. HOLWICK, ADMINISTRATOR.

SPRING HEAD PINNING MACHINE.

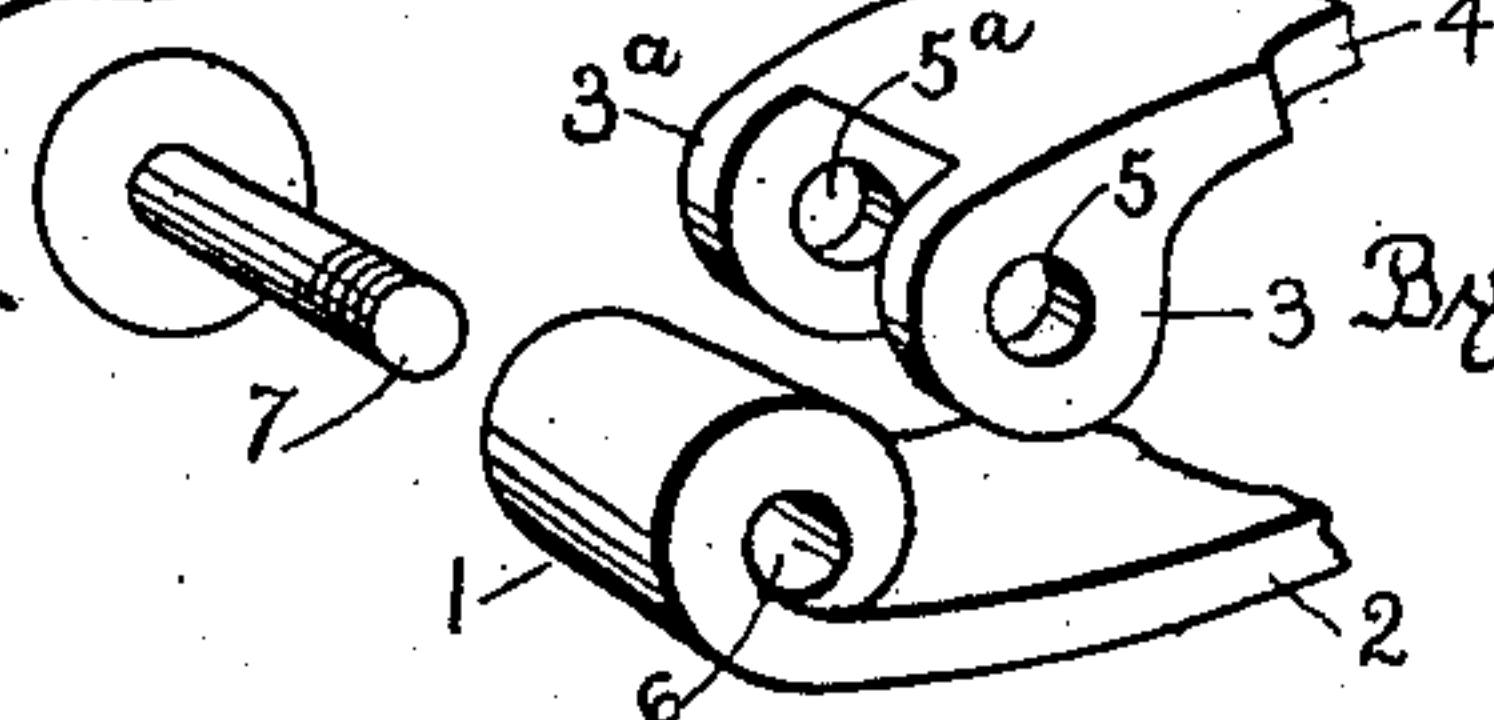
APPLICATION FILED FEB. 14, 1903.

NO MODEL.



Witnesses  
H. H. Stough  
Joseph Freese.

*Fig. 4*



Inventor

Charles F. Shoemaker, Deceased,  
By Daniel L. Holwick, Administrator,  
By Harry Freese.  
Atty.



# UNITED STATES PATENT OFFICE.

DANIEL L. HOLWICK, OF CANTON, OHIO, ADMINISTRATOR OF CHARLES F. SHOEMAKER, DECEASED.

## SPRING-HEAD-PINNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 755,005, dated March 22, 1904.

Application filed February 14, 1903. Serial No. 143,354. (No model.)

*To all whom it may concern:*

Be it known that CHARLES F. SHOEMAKER, deceased, late a citizen of the United States, and a resident of Canton, in the county of Stark and State of Ohio, invented a new and useful Spring-Head-Centering Machine, of which the following is a specification.

The invention relates to a machine for centering the scroll between the ears for the insertion of the bolt to form the head of a spring; and the objects of the machine are to bring the parts together quickly, neatly, and accurately without any bending or warping and to press the parts together to hold them in proper relative position until the bolt is inserted. These objects are accomplished by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the entire machine; Fig. 2, a detached vertical section of the converging plates; Fig. 3, a detached vertical section of the centering mechanism; Fig. 4, a detached perspective view of the scroll, ears, and bolt to be assembled to form the head of the spring; Fig. 5, a detached side view of the scroll entered part way between the ears; Fig. 6, a detached view of the manner in which the scroll and ears are approximately centered, and Fig. 7 a detached side view of the head accurately centered and ready for the bolt.

Similar numerals refer to similar parts throughout the drawings.

In the manufacture of springs the scroll on the end of the lower part 2 of the spring has usually been inserted by hand between the ears 3 and 3<sup>a</sup> on the upper part 4 and brought into approximate position by the stroke of a hammer, after which the parts have been centered by first driving a centering-pin through the eye 5 of the ear 3 into the eye 6 of the scroll and then through the eye 5<sup>a</sup> of the ear 3<sup>a</sup> into the eye 6 of the scroll on the other side of the spring. By this method of centering first on one side and then on the other the scroll and the ears are bent or warped out of their true shape, and, furthermore, when the pin is withdrawn the ears are bent or pulled out and away from the scroll, and

to hold the parts together the bolt 7 must be inserted at once, and even then the ears do not join the scroll neatly or truly, because the parts are out of shape.

On the table 8 of the machine are attached two converging blocks 9 side by side and diverging from each other toward the side of the table. On the inner sides of the blocks 9 are attached the converging plates 10, which can be extended out beyond the side of the table, if desired. The converging plates are preferably located the thickness of the ear 3<sup>a</sup> above the table, so the ears 3<sup>a</sup> and 3 can pass, respectively, under and above the edges of the plates in event the ears are larger in diameter than the scroll.

The scroll and the ears are preferably first brought to a red heat in a forge, and then the scroll is entered part way between the ears, as shown in Fig. 5. These parts are then thrust between the converging plates 10, which operation brings the scroll and ears approximately to a center, as shown in Fig. 6. The approximately-centered head 11 is then placed on the bed-plate 12, located on the table of the machine under the presser-plate 13, with the eyes of the ears and scroll in line with the centering-pin 14, as shown in Fig. 3. The presser-plate 13 is adjustably located a little farther above the bed-plate than the width of the spring and, as illustrated, is guided by the two bolts 15, which pass through the perforations 16 near its respective ends and extend down into the bed-plate. The presser-plate can be moved vertically up and down these bolts, the upward movement being limited by the adjustable stop-nuts 17 and the downward movement being resisted by the coil-springs 18, located around the bolts and resting on the adjustable nuts 19 on said bolts. The presser-plate is provided with the aperture 20, located in line with the centering-pin 14, which aperture is preferably extended to the side of the plate to enable the operator to see the head of the spring when the same is placed under the plate. The bed-plate 12 also is provided with an aperture 21, located in line with the centering-pin. The apertures 20 and 21 are formed of a size to neatly receive the



centering-pin, which passes through the former into the latter in its operation. The centering-pin 14 is adjustably attached in the socket 22 in the lower part of the threaded shank 23 by means of the set-screw 24, which is preferably located in the enlarged lower end or head 25 of said shank. The shank 23 is in turn attached in the threaded socket 26 in the plunger 27, where it is held in any desired adjustment by the jam-nut 28. The plunger 27 is guided by and has a vertical movement in the bearing 29, which in turn is attached to the frame 30 of the machine. The vertical movement is imparted to the plunger by the pitman 31, actuated by the crank 32 on the shaft 33, on which is the clutch cog-wheel 34. The clutch-wheel is turned by the cog-pinion 35 on the shaft 36, on which shaft is also the driving-pulley 37, to which power is communicated by the belt 38. The clutch-wheel is thrown in whenever it is desired to operate the pinning mechanism by means of the pedal 39, the connecting-rod 40, and the clutch-lever 41. When the approximately-centered head is placed on the bed-plate under the presser-plate in line with the centering-pin, as stated above, the machine is operated by depressing the pedal 39, and the centering-pin descends through the aperture 20 of the compressing-plate, respectively, into and through the eye 5 of the ear 3, the eye 6 of the scroll, and the eye 5<sup>a</sup> of the ear 3<sup>a</sup>, and into the aperture 21 of the bed-plate. This operation brings the eyes of the ears and the scroll into line with each other, and at the same time the head 25 of the shank 23 descends against the upper side of the presser-plate and depresses the plate against the upper side of the spring-head, as shown in broken lines in Fig. 3. The centering-pin is so adjusted in the shank 23 and the shank is so adjusted in the plunger 27 that the presser-plate comes against the head of the spring immediately after the parts thereof are accurately alined by the centering-pin and with sufficient force to straighten the eyes and scroll in event they are not in true shape and also to press them closely together, so they will retain their proper relative posi-

tion after the centering-pin is withdrawn and until the bolt is inserted. As the centering-pin ascends it carries with it the head of the spring, together with the presser-plate, until the plate strikes the stop-nuts 17. The further ascent of the centering-pin draws it out of the eye 42 of the head of the spring; but as the head is squarely against the lower side of the presser-plate there is no bending or warping or deranging of any of the parts of the spring in this operation. The head of the spring is then ready for the insertion of the bolt, with all the parts in true shape and position, and by reason of the pressure to which it has been subjected will not come apart from the shocks of ordinary handling in case the bolt is not inserted at once. When the bolt is inserted, there is thus completed a true, neat, and close joint. A centering-pin of the same diameter as the spring-head bolt is used, so that the eye of the head is shaped to closely fit the bolt.

The converging blocks and plates for approximately centering the spring-head, which are illustrated and described, but not claimed herein, will be made the subject of another application for Letters Patent.

What I claim as the invention of said CHARLES F. SHOEMAKER, and desire to secure by Letters Patent, is—

A spring-head-centering machine comprising a bed-plate, an adjacent spring-held presser-plate having an aperture therein, stops limiting the departure of one plate from the other, a centering-pin adapted to operate through the presser-plate aperture toward and from the bed-plate, and a presser-head adapted to thrust the presser-plate toward the bed-plate, at or near the completion of the pin-stroke.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL L. HOLWICK,  
*Administrator of the estate of Charles F. Shoemaker, deceased.*

Witnesses:

HARRY FREASE,  
ELSIE MALLORY.