C. W. PECK.

MACHINE FOR SQUARING ENDS OF SPIRAL SPRINGS.

APPLICATION FILED FEB. 7, 1908.

919,758. Patented Apr. 27, 1909.

Fig. 1.

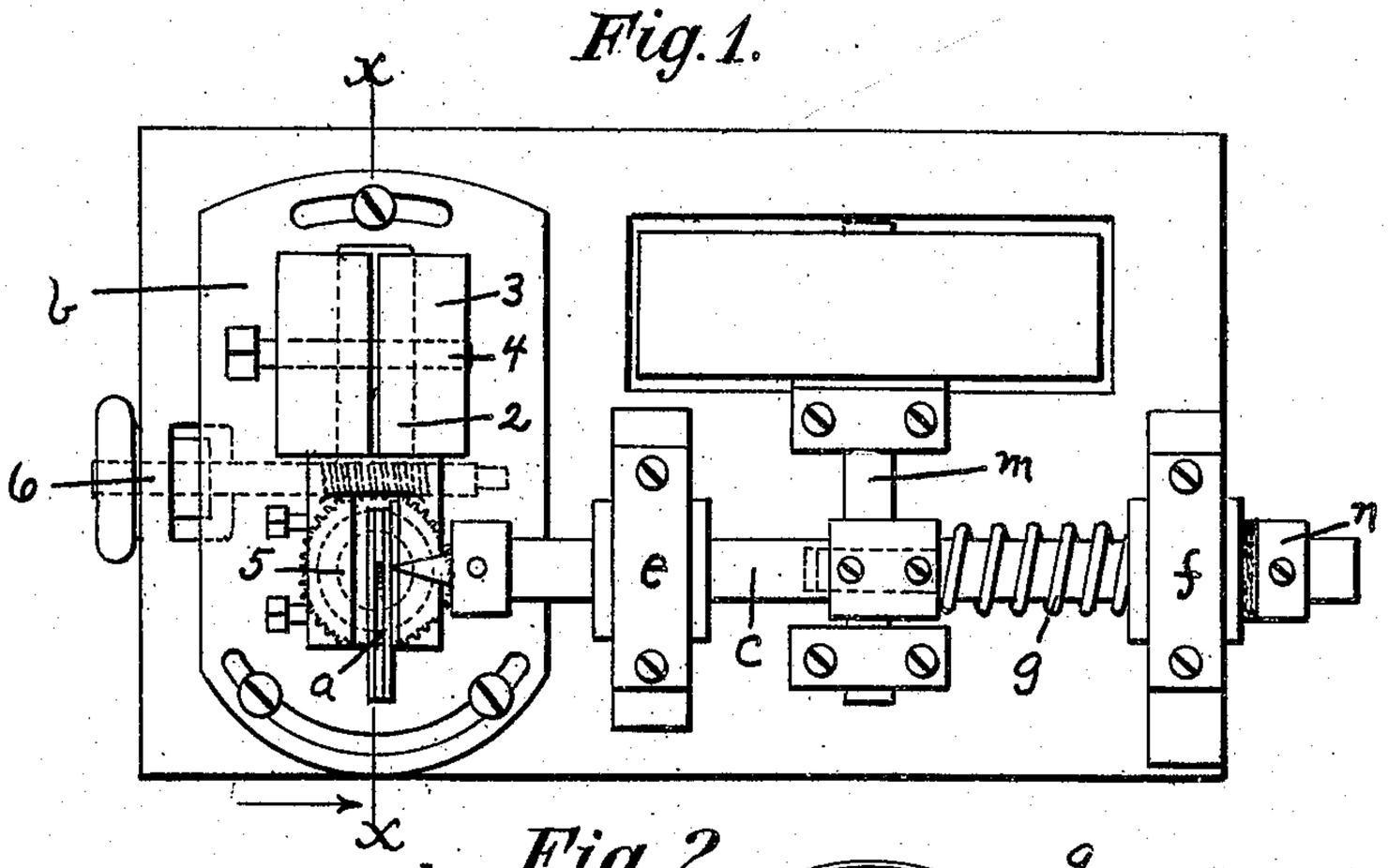


Fig. 2.

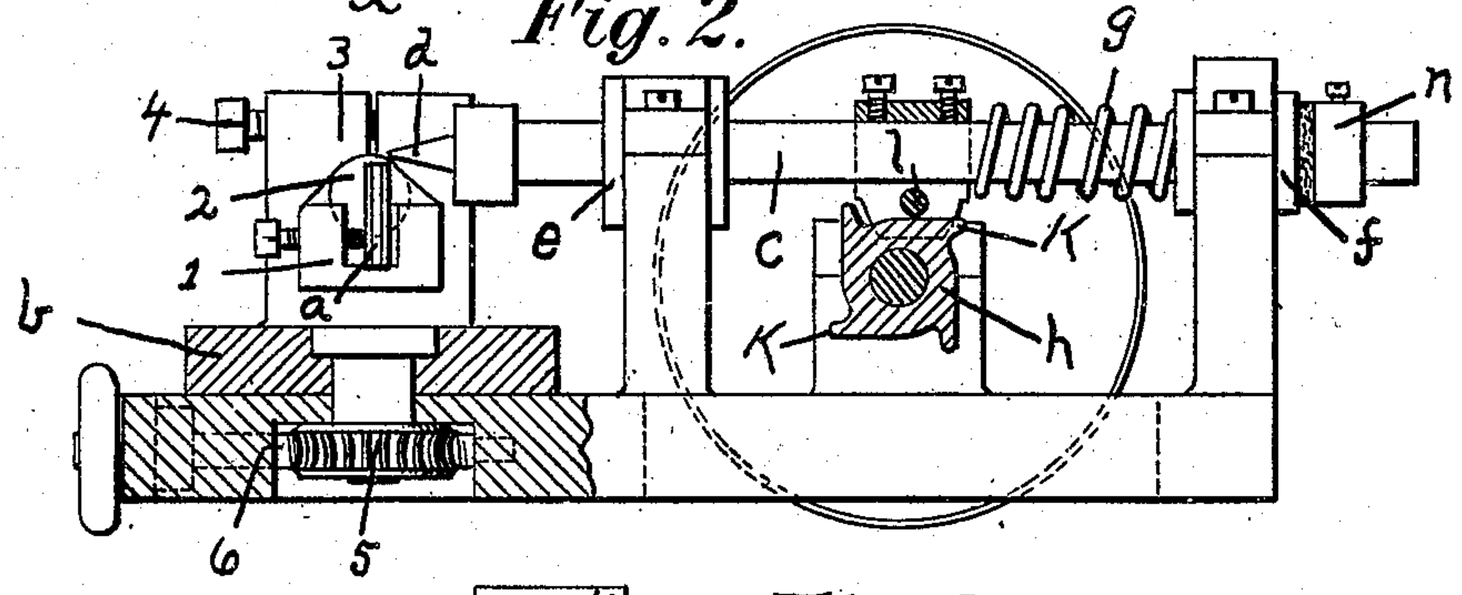


Fig. 3.

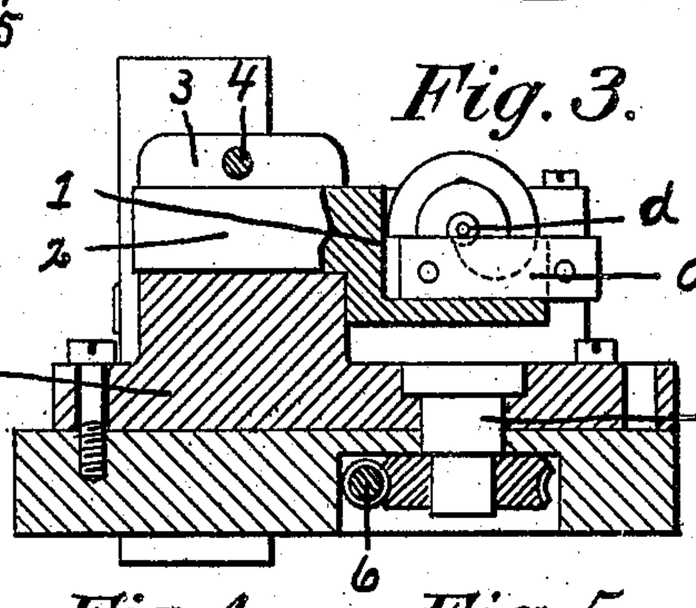


Fig. 7.

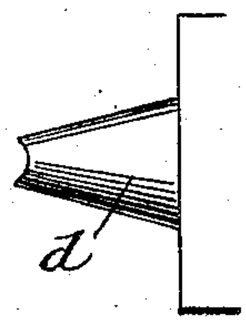
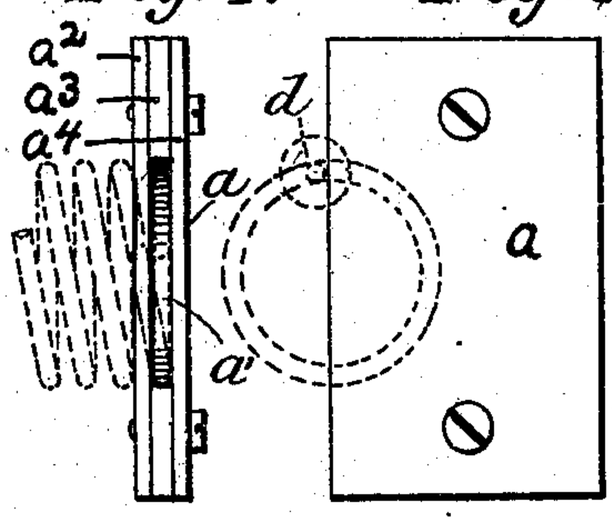


Fig. 6.

Fig. 4.

Fig. 5.



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MACHINE FOR SQUARING ENDS OF SPIRAL SPRINGS.

No. 919,758. Specification of Letters Patent. Patented April 27, 1909.

Application filed February 7, 1908. Serial No. 414,729.

To all whom it may concern:

Be it known that I, CHARLES W. PECK, a citizen of the United States, residing at Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machines for Squaring Ends of Spiral Springs, of which the following is a specification.

The object of my invention is to provide a machine of the class specified which has features of novelty and advantage.

Figure 1 is a plan view of the machine. Fig. 2 is a lateral view partially in cross section. Fig. 3 is a cross section view on the line *x*—*x* of Fig. 1. Fig. 4 is an enlarged plan view of the receptacle showing a spiral spring in place. Fig. 5 is a lateral view of the receptacle showing a spire of the spring in place, and the position of the tool relative thereto. Fig. 6 shows the result of the operation on a spiral spring, the end being squared. Fig. 7 shows the groove in the tool adapted to engage the surface of the spring.

A receptacle —*a*— for receiving a single coil or spire at the end of a spiral spring is slotted so that the spire will rest snugly in the slot —a^1—. The receptacle may be a single block but I prefer to make it of three pieces —a^2—, —a^3—, —a^4— and have the center piece —a^3— cut out to provide the slot. This receptacle is secured in place on a bed —*b*— so that the slot will lie at about right angles to a longitudinally movable arbor —*c*—. The head of this arbor carries a tool —*d*— which is adapted to engage the single coil or spire when in place in the slot of the receptacle. I prefer to have the tool engage the spring close to the face of the receptacle. The tool delivers blows against the spring intermittently and as rapidly as desired. While these blows are being struck the operator revolves the spiral spring in the slot so that the blows hitting the spire at different points will gradually square the end of the spring. The tool —*d*— might be integral with the arbor —*c*— but for convenience I prefer to have them separate. The end of the tool is grooved to fit the thickness of the various springs being squared. The intermittent blows delivered by the arbor might be accomplished in various ways but I prefer to use the following means. The arbor is longitudinally movable in the boxes —*e*— and —*f*—. The spring —*g*— encircling said arbor normally presses it forward. The reciprocating motion is accomplished by beater wheel —*h*— having a plurality of lugs —*k*—, —*k*— which intercept the pin —*l*—, and this throws the arbor back compressing the spring —*g*— until the pin —*l*— escapes the revolving lug —*k*—, so that the arbor is free and the blow is struck. The next lug —*k*— then intercepts the pin —*l*— and the action is repeated.

The collar —*n*— is adjustably secured at the end of the arbor. In case the arbor is thrown too far forward by the spring —*g*—, I adjust the collar —*n*— on the arbor close to the stationary box —*f*—, so that the tool in the arbor cannot be carried beyond the slot in the receptacle —*a*—. Of course, the rapidity of the intermittent blows of the tool on the end spire of the spring depends on the wheel —*h*— carried on the driven shaft —*m*—. The blows on the end of the spiral spring in the receptacle has a tendency to spread the spire radially outward depending on the thickness of the wire and whether it is tempered or not. Consequently it is necessary to have the receptacle adjustably mounted so that the tool may engage the spring at an oblique angle. Thereby the tool drives the spire a little toward the center of the spiral as the spring is being turned and prevents the spreading tendency. In order that the plane of the slot in the receptacle may be at an oblique angle to the longitudinally movable arbor, I provide two separate adjustments. The first adjustment is as follows:—The vise —1— which holds my receptacle has an integral, lateral, cylindrical extension —2—, which extension fits into a milled block —3— and is adjustably held in place by the set screw —4—. When the vise —1— is turned in the block —3— my receptacle is also turned so that the plane of the slot in the receptacle may be at an oblique angle to the longitudinally movable arbor —*c*—. The other means for adjusting the receptacle is as follows:—The bed —*b*— which carries the vise —1— and my receptacle —*a*— is secured to a pivot block —5— and said pivot block —5— is adapted to be slightly rotated by means of a worm screw —6— which engages a gear on the block —5—. The first adjustment of the vise —1— operates independently and entirely separate from the second adjustment which is controlled by the worm screw —6—. However, in that the vise —1— is secured to

the bed —*b*— when the second adjustment referred to is operated the vise is necessarily carried by the bed —*b*—.

The tool —*d*— is adapted to deliver intermittent blows upon the end spire of a spiral spring preferably close to the face of the slot in the receptacle —*a*—. When the spring is not in place, the tool will be carried a trifle beyond the slot but to prevent its being carried too far or to bend the spire of the spring too much an adjustable stop —*n*— is arranged on the opposite end of the arbor —*c*—.

The result of the operation as shown in Fig. 6 is that the plane of the end spire is approximately perpendicular to the line through the center of the axis of the spiral spring. As the springs are commonly used, this end spire is adapted to rest on a surface which is perpendicular to the axis of the spiral spring. By thus squaring the end of the spiral spring, the full force of the spring is obtained.

I claim—

1. In a machine of the class specified, a receptacle having a slot adapted to receive the end spire of a spiral spring, a tool secured in an arbor adapted to deliver intermittent lateral blows at successive points on said spire, said tool being longitudinally movable transversely to the plane of said slot.

2. In a machine of the class specified, a receptacle having a slot adapted to receive the end spire of a spiral spring in a snugly movable position, a tool secured in an arbor adapted to deliver intermittent lateral blows at successive points on said spire, said tool being longitudinally movable transversely to the plane of said slot and in proximity to the face thereof.

3. In a machine of the class specified, a receptacle having a slot adapted to receive the end spire of a spiral spring, a tool secured in an arbor adapted to deliver intermittent lateral blows at successive points on said spire, said tool being longitudinally movable transversely to the plane of said slot, and means for adjusting said receptacle whereby the plane of the slot therein will be at an oblique angle to the longitudinally movable arbor for the purpose above described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. PECK.

Witnesses:
DONALD K. PECK,
GEO. B. WARD.