Z. B. LEONARD.

MEANS FOR SHAPING LEAF SPRINGS.

APPLICATION FILED JAN. 31, 1916.

1,178,020.

Patented Apr. 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

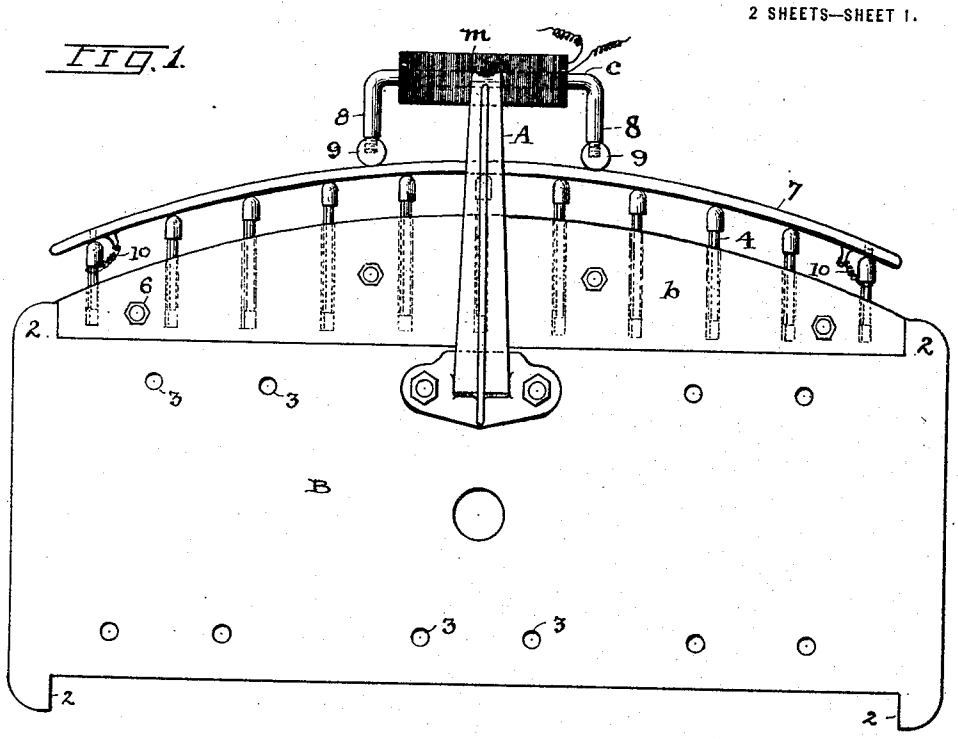
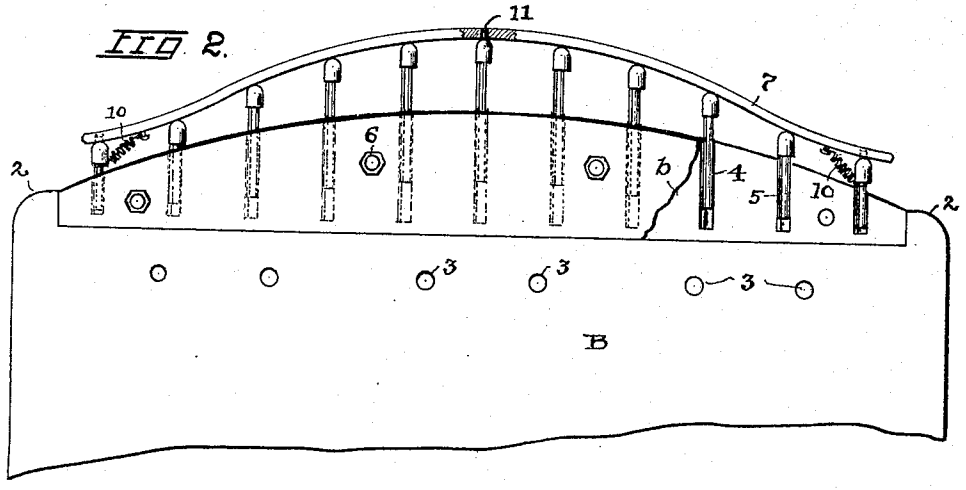


Fig. 2.



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2 SHEETS—SHEET 2.

FIG. 3.

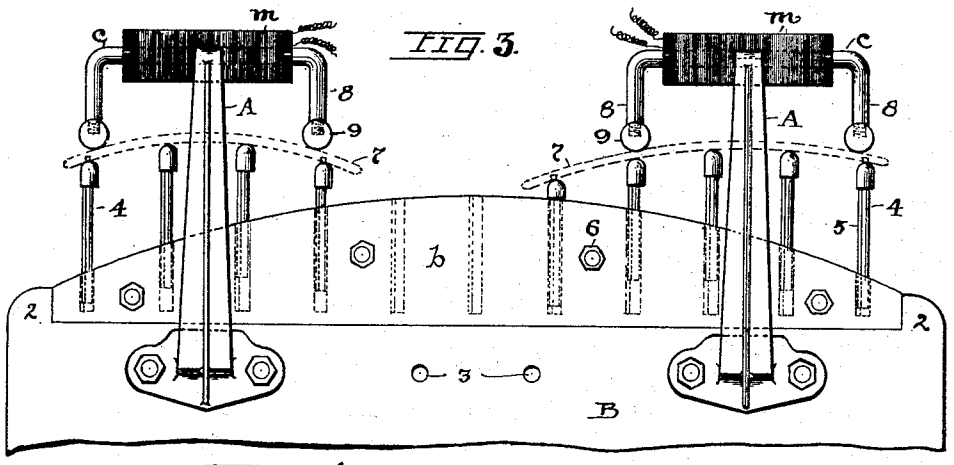


FIG. 4.

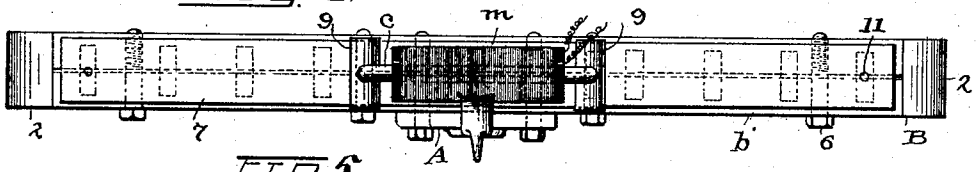


FIG. 5.

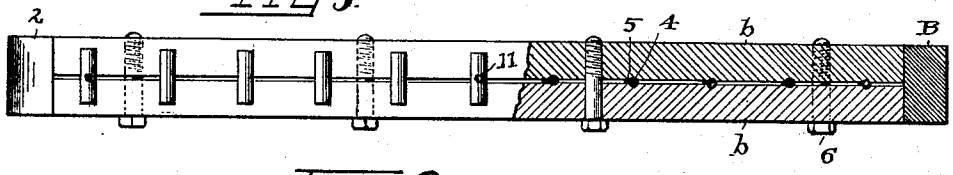
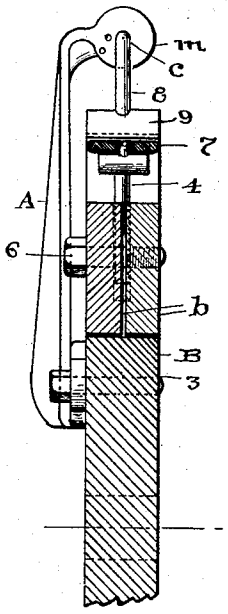


FIG. 6.



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MEANS FOR SHAPING LEAF-SPRINGS.

1,178,020. Specification of Letters Patent. Patented Apr. 4, 1916.

Application filed January 31, 1916. Serial No. 75,406.

To all whom it may concern:

Be it known that I, ZENAS B. LEONARD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Means for Shaping Leaf-Springs, of which the following is a specification.

This invention relates to means for shaping leaf springs, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the complete mechanism, and Fig. 2 is a side elevation of the shaping mechanism alone. Fig. 3, Sheet 2, is a side elevation of the shaping mechanism arranged for two short springs instead of a single spring as in Fig. 1. Fig. 4 is a plan view of Fig. 1, and Fig. 5 is a plan view of Fig. 4 with the templet removed and partly broken away at the right. Fig. 6 is a cross section of Fig. 1 at about the middle thereof.

As thus shown the invention, in gross, comprises the shaper, so-called, shown in Fig. 2, especially, and the electro-magnet shown in several views and supported by or from the base B of the said shaper by means of the arm A bolted to the side thereof at its middle in Fig. 1, and at its ends, Fig. 3. The said base is a solid part with a recess in each edge having shoulders 2 at the ends, and provided with transverse bolt holes 3 adapted to fasten the arm A as shown in Fig. 1, or as in Fig. 3, and the said base is invertible so that either edge can be turned up for use. The member or part *b*, referred to herein also as a bolster, is made in two pieces or sections of non-magnetizable material adapted to be bolted together in clamping relations and to abut at its ends against the shoulders 2 and has a straight lower edge resting in said recess and a rounded top edge lengthwise with the highest point at the middle. The said sections or parts of the bolster also have half round grooves or channels vertically at comparatively close intervals extending nearly the full depth thereof from the top downward and directly opposite each other in the said sections and adapted to receive the stems of the T-shaped pins 4. The said pins, so-called, are slidable within limits in their sockets or channels and adapted to be immovably secured in any adjusted position by clamping the sides of the bolster thereon by means of bolts 6. The adjustment or positioning of the said pins is incidental to the style of lead support and shaper or templet 7 used therewith and the action of the magnet *m*, and the said magnet is supported by the arm A engaged with the middle thereof in this instance. The said magnet has a core *c* projecting through the ends thereof and downward at right angles as seen at 8 and the terminals thereof provided with conducting extremities or feet 9 attached, in this instance, and adapted to support the templet by establishing magnetizing relations therewith and therethrough to lift and hold the said pins until adjustments are effected. Hence when the templet or forming plate 7 is placed in position and brought into touch with the extremities or terminals 9 of the magnet core, the said templet will be held thereby and the pins 4 being unclamped so as to be free to move, can either be brought individually up into contact with the templet, which is of magnetizable metal and be held in suspended position thereby, or the said pins if near enough will be magnetically drawn up and all alike be held in that relation. Then by tightening the clamping screws 6 the pins will be fixed mechanically and the work of the magnet for the time being accomplished. The magnet can then be removed and the work of shaping the springs on the templet proceeded with as usual. Of course it is understood that the spring stock comes to the templet in a heated state so that it may be pressed to assume the shape of the templet on which it is placed and tempered to retain that shape. To illustrate this I am showing one form of templet in Fig. 1, another form in Fig. 2 and still another form and size in Fig. 3. Still other forms may be used, as is obvious, but the means for pressing the heated spring stock upon the templet and tempering of the spring is not shown as the invention may be used in any machine built for this purpose.

The magnet and its supporting arm together constitute a substantially T-shaped structure with this modification of the strictly T form that the top of the arm is bent or projected inward at substantially right angles to bring the magnet directly over the templet. Of course the magnet *m* and arm A as herein constructed is especially, if not only, adapted for use with and

in a leaf shaping device of the kind herein described, though in another sense it is a distinct article of manufacture and sale.

It will be noticed that the pins 4 have longitudinal splines or ribs 5 adapted to come between the side sections of the bolster *b* and prevent the pins from turning axially so as to keep the heads of the pins in transverse relations in respect to the templet or leaf support 7. Any suitable means, such as coiled springs 10, may be used to secure the templet or support 7 upon the pins 4 during spring shaping operations, and centering lugs 11 may also be used at the top of the pins 4 to enter holes in the templet 7 and assist in setting and holding the templet in place.

The bolster *b* is constructed of non-energizable material, such as aluminum or the like, and hence is not affected by the magnetism which reaches the pins.

What I claim is:

1. A mechanism as described comprising a spring leaf support, in combination with a magnet having the terminals of its core in magnetizing relations with said support.

2. A spring leaf shaping mechanism comprising a leaf shaping support, in combination with a magnet next above said support and in magnetizing relations therewith, so that when the magnet is energized it will lift the said support into magnetic relations therewith.

3. A mechanism as described comprising a spring leaf shaping support and a series of vertically movable pins adapted to serve as rests therefor, in combination with means to magnetically energize said support and said pins.

4. A mechanism as described, comprising a former for a leaf spring comprising a series of substantially T-shaped pins and means to confine the same in slidable relations, in combination with a leaf support next above the said pins and a magnet having arms adapted to reach and energize the said support and thereby attract the said pins.

5. A mechanism as described, consisting of a leaf spring forming mechanism having a series of slidably arranged T-shaped pins in a row, a support for the leaf above and separate from said pins, a magnet having terminals within energizing relations to said support and means to clamp said pins in sustaining position for said support.

6. In means for shaping leaf springs, a base member having a set of templet supports mounted for vertical adjustment thereon, and a templet for shaping the springs removably seated upon said adjustable supports, in combination with an electric magnet and a support therefor to hold said templet temporarily until adjustment of said templet supports has been effected.

7. In means for shaping leaf springs, a clamping device having a set of supporting elements for a templet adjustably mounted thereon, in combination with means to hold said supporting elements magnetically in a suspended position relatively to said device during clamping operations.

8. In means for shaping leaf springs, a templet and a base support therefor having adjustable seating elements for said templet, in combination with means to magnetize said templet and means to support said templet, whereby all the seating elements may be suspended together and adjustably fixed upon said base support.

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

ZENAS B. LEONARD.

Witnesses:
R. B. MOSER,
GEO. E. KRICKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."