

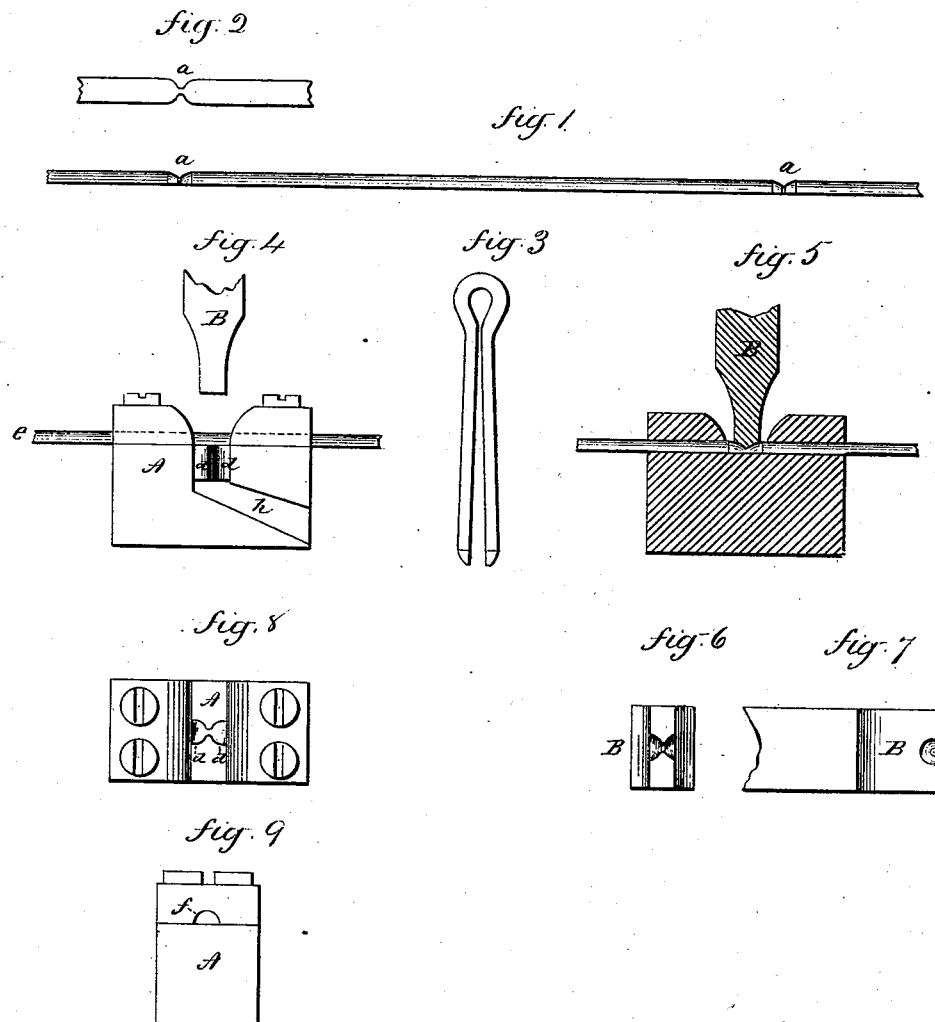
(No Model.)

J. ADT.

STOCK FOR SPRING KEYS.

No. 260,919.

Patented July 11, 1882.



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UNITED STATES PATENT OFFICE.

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STOCK FOR SPRING-KEYS.

SPECIFICATION forming part of Letters Patent No. 260,919, dated July 11, 1882.

Application filed March 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN ADT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in the Manufacture of Spring-Keys; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, an edge view; Fig. 2, a face view of the wire as prepared for market; Fig. 3, the hook as made from blanks cut from the said wire. Figs. 4, 5, 6, 7, 8, and 9 illustrate the mechanism for producing the wire.

This invention relates to an improvement in the manufacture of bent spring-keys—that is to say, keys for various mechanical purposes which are made from wire doubled, their ends brought nearly together to form the two legs, which are elastic, so that by pinching the two legs together the key may be inserted into a hole, and, passing through it, will spread and hold the key in place. This class of keys are sometimes called “cotter-pins.” These pins are usually made from half-round wire bent to bring the flat surface of the two legs together. The wire is cut to the required length and bent into the proper shape. It is necessary that the entering end of the key should be of conical shape. Hence in the usual method of manufacture, after the wire is bent, the two legs are brought together, making a cylindrical end, and this end is applied to a grinding-wheel and the metal ground off until the required taper is attained. This grinding or shaping of the point is an expensive part of the process.

The object of my invention is to prepare the wire before it is cut, so as to avoid the grinding; and it consists in swaging and trimming the metal at points distant from each other, according to the length of the blank required for the key, without separating the wire at those points, as more fully hereinafter described.

In Fig. 1 a piece of half-round wire is shown, having the prepared points, as at *a*, distant from each other according to the length of the blank required—that is to say, that part between the two points is of the length required

to produce the key. At these points *a a* a portion of the metal is cut away from each side in substantially V shape, as seen in Fig. 2, and a swaging made upon the half-round surface, which will produce a V-shaped semi-annular cavity in the wire, one half of the V shape corresponding to the shape required for the point, so that cut at the center of the V, one side forms the point of one leg of a key and the other side the point of one leg of the next key. The blank thus cut from the wire is bent by any suitable device into the shape seen in Fig. 3, so as to bring the flat surfaces of the key together. Then the one half V shape at one end and corresponding shape at the other, brought together, produces the required conical point, as seen in Fig. 3.

The best device known to me for thus preparing the wire is shown in Figs. 4, 5, 6, 7, 8, and 9. This consists of a die, *A*, over which the wire *e* freely passes, guided by an aperture, *f*, as seen in Fig. 9, which shows a view of the die-block. In this die, and immediately beneath the flat surface of the wire, is the operative part *d d* of the die. This consists of a block in transverse section corresponding to the shape of the cut or depression to be made in the wire, such as seen at *a*, Fig. 2. Over this block *d d* is the second part, *B*, of the die, as seen in side view, Fig. 4, in longitudinal vertical section, Fig. 5, in end view, Fig. 6, and side view, Fig. 7. The under or working face of this second part *B* has a form which corresponds to the semi-annular-shaped depression to be made in the wire, as seen in the several views, so that, coming down upon the wire which lies upon the block *d d* and working in connection with it in a vertical line, it cuts from the edge of the wire to make the V shapes before described, and also swages the wire at that point to produce the semi-annular V-shaped groove in the wire. The dies may be used in any suitable press, the one being stationary and the other reciprocating toward the one, in their proper relation. This done at one point, the wire is moved along the requisite distance, the second shaping of the wire is made, and so on, leaving the wire in merchantable condition to be received by the manufacturers of spring-keys for subsequent and completing operations.

I have devised a machine which employs

substantially this method of preparing wire for the making of spring-keys, and after it is so prepared cuts the blanks successively from the wire and bends them into the required shape. This device constitutes the subject of an independent application of even date herewith, and I make no claim in this application to the particular dies which I have shown and described, as other dies may be devised which will accomplish the same result—that is to say, produce the semi-annular groove in the half-round wire. In the part A of the die the

opening *h* (represented in Fig. 4) is for the escape of chips cut from the wire.

What I claim as my invention is—

As an article of manufacture, half-round wire for the manufacture of spring-keys, having the grooves *a* formed in its semi-cylindrical surface corresponding to the shape required for the ends of the keys, substantially as described.

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