H. M. JOHNSON.

Dies for Crimping the Halves of Split Spindles.

No. 162,661. Patented April 27, 1875.

Fig. 1.

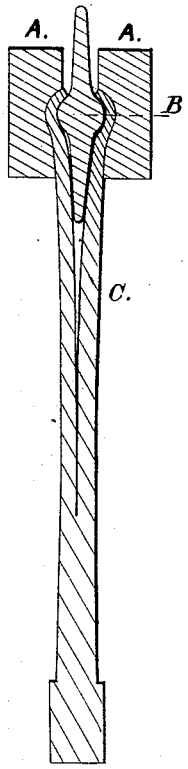



Fig. 2.

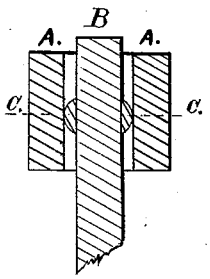



Fig. 3.

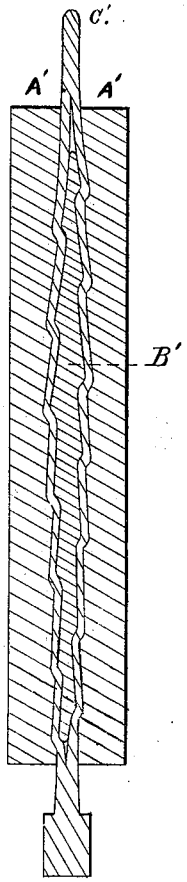
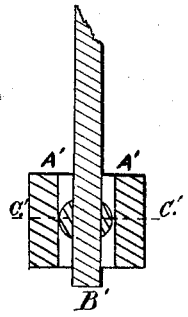



Fig. 4.




Witnesses.
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Edwin A. Cheney

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# UNITED STATES PATENT OFFICE.

HENRY M. JOHNSON, OF LOWELL, MASS., ASSIGNOR TO EARL A. THISSELL, CYRUS C. PICKERING, AND EDWIN LAMSON, OF SAME PLACE.

## IMPROVEMENT IN DIES FOR CRIMPING THE HALVES OF SPLIT SPINDLES.

Specification forming part of Letters Patent No. **162,661**, dated April 27, 1875; application filed January 7, 1874.

*To all whom it may concern:*

Be it known that I, HENRY M. JOHNSON, of Lowell, Middlesex county, Massachusetts, have invented Dies for Forming Spindles, of which the following is a specification:

My invention relates to an improvement in the manufacture of notched, serrated, or undulating split spindles; and consists in the employment of a central die in combination with two outer dies, in such a manner that the desired form may be given to both sides of the spindle at one operation, the object of my invention being to facilitate the manufacture of spindles of this class, and to produce a stronger and lighter spindle than has heretofore been made.

Figure 1 is a longitudinal section through the spindle and dies embodying my invention. Fig. 2 is a cross-section of the same. Fig. 3 is a longitudinal section through dies and spindles, showing a different form of spindle, and also embodying my invention. Fig. 4 is a cross-section of same.

A A A′ A′ are dies acting on the outside of the spindle. B B′ are dies placed in the opening. C C′ are the forms of longitudinal and cross-sections of the two forms of spindles. The outer dies should be placed in a suitable press, and the central die placed in its proper relative position, allowing a slight movement toward either of the outer dies. The spindle may now be placed over the central die and the desired form be given it by bringing the outer dies to bear with pressure on the central die.

It is apparent that a spindle may be much more readily polished before any irregularity is given to its outline, and that it is desirable to impress these irregularities with as slight an injury to the surface as possible. In all former methods of producing the irregularities of outline the depressions have been produced by the use of a file, or by hammering, giving a roughness of surface which must be removed by a comparatively laborious process. The use of a file across the spindle for the purpose of forming the depressions weakens the spindle materially, while the spindle formed by my improved dies may have a cross-section of nearly equal strength at every part of its length, and, while the spindle formed by the dies requires much less finishing after the stamping operation than that formed by blows from a hammer, it is also a much more expeditious method of shaping.

The faces of the outer dies, in cross-section, are straight, and do not conform to the cross-section of the spindle. This form of cross-section is especially convenient in operation, as the spindle need not be placed so carefully on a particular line of the central die, and in consequence the operation may be more quickly performed, besides avoiding an objectionable offset on the edges of the split halves if the dies were made to conform, in cross-section, to the spindle-halves.

I claim—

The dies for crimping split spindles, consisting of the loose central die provided with transverse ribs, and the two outer dies, having grooves or depressions corresponding to the ribs of the central die, substantially as de-described.

HENRY M. JOHNSON.

Witnesses:
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