

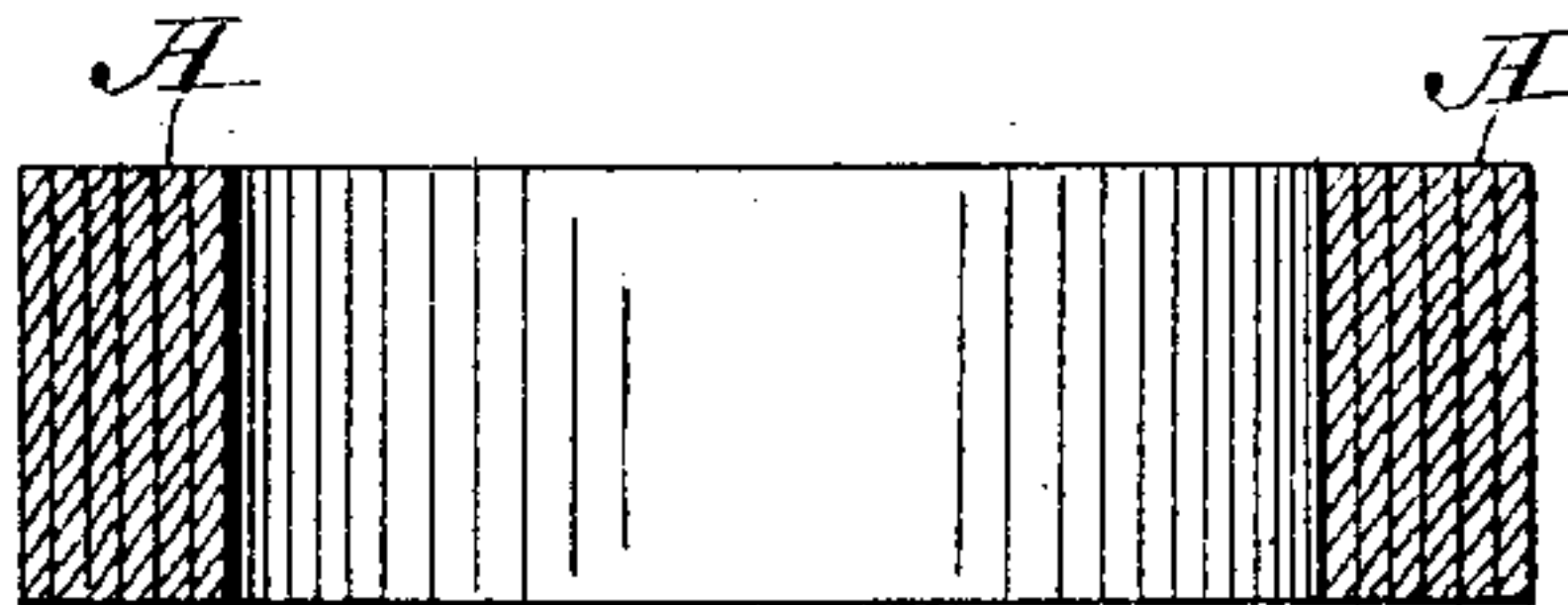
(No Model.)

E. J. WATSON & H. W. WILLSON.  
WATCH SPRING.

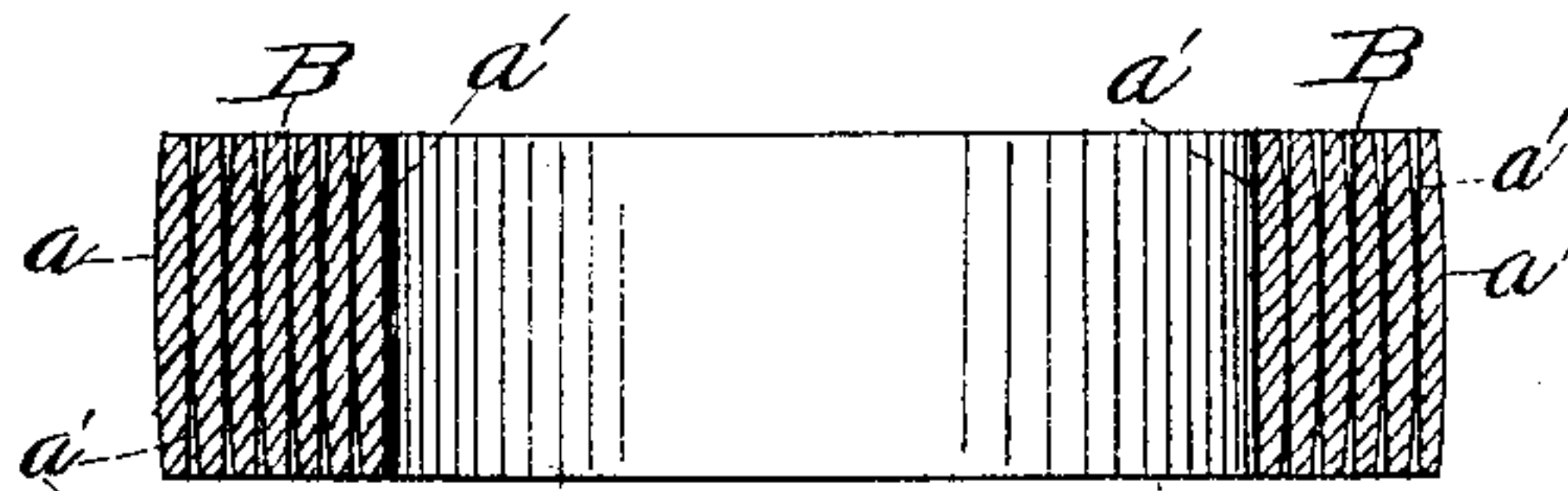
No. 266,737.

Patented Oct. 31, 1882.

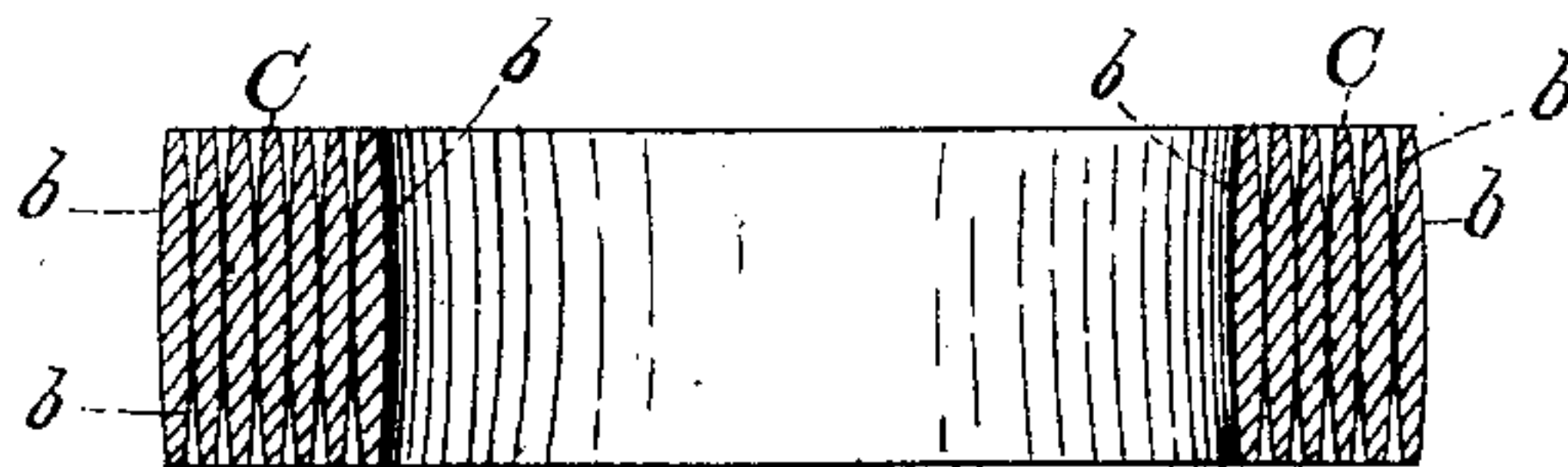
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses;*  
*Edwin C. Moore*  
*Chas. D. Gay.*

*Inventors;*  
*Edwin J. Watson*  
*Horace H. Willson.*

# UNITED STATES PATENT OFFICE

EDWIN J. WATSON AND HORACE W. WILLSON, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO THE WASHBURN & MOEN MANUFACTURING COMPANY, OF SAME PLACE.

## WATCH-SPRING.

SPECIFICATION forming part of Letters Patent No. 266,737, dated October 31, 1882.

Application filed May 31, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, EDWIN J. WATSON and HORACE W. WILLSON, both of the city and county of Worcester, and Commonwealth of Massachusetts, have invented a certain new and Improved Watch-Spring; and we do hereby declare that the following is a full, clear, and accurate description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents, upon an enlarged scale, a central cross-section of a coiled watch-spring made in accordance with the old plan and style practiced prior to our said invention. Fig. 2 represents, also upon an enlarged scale, a central cross-section of a watch-spring embracing our improvement; and Fig. 3 also represents, upon an enlarged scale, a central cross-section of a watch-spring embracing our said invention, but modified somewhat from the watch-spring shown in Fig. 2, as will be hereinafter more fully explained.

The nature of our invention consists of a spring for watches and other similar purposes, one or both sides of which presents convexity in cross-section, whereby when the spring is coiled for use the friction of the spring is reduced to a minimum, in consequence of the convexity of the spring preventing contact in the several coils thereof, excepting along the central line of the spring.

To enable those skilled in the art to which our invention belongs to make and use the same, we will proceed to describe the invention more in detail.

In the drawings, Fig. 1, the part marked A represents a section of the old watch-spring, the sides of which are parallel with each other.

Fig. 2, B represents a section of a watch-spring embracing our invention, one side, *a*, of which is made convex, while the other side, *a'*, is made straight; and in Fig. 3, C represents a cross-section of a watch-spring, both sides *b* of which are convex, as fully indicated in the drawings.

In carrying out our invention the process of

manufacture is substantially the same as that described for manufacturing watch-springs in the Letters Patent granted to us January 24, 1882, No. 252,635, and therefore reference is made to such patented process, which obviates the necessity of a repetition of the process in this specification, and we therefore confine ourselves to the statement that wire is used in our present invention, and the last reducing operation is carried out by passing the wire or partially-finished spring through or between one or more sets of rolls, whereby the sides of the spring are left convex, and this result can be obtained by means of rolls having parallel surfaces, as we have demonstrated by actual experiments; but, if preferred, the convex form of the watch-spring may be produced by other modes of manufacture than that above described without departing from the principle of our invention.

As before stated, watch-springs thus made, as above indicated, are more perfect in action, in consequence of the slight friction existing between the several coils of the spring—a result which has been long sought after, but which has not been attained prior to our said invention. Any suitable process may be adopted in carrying out our invention.

It will be understood by those skilled in the art to which our invention belongs that a watch-spring convex only upon one side will possess almost the same advantages as a watch-spring convex upon both sides, and therefore we do not limit ourselves to a watch-spring convex on both sides; but

What we claim as our invention, and desire to secure by Letters Patent, is—

As an improved article of manufacture, a watch-spring convex upon one or both sides, substantially as and for the purposes set forth.

EDWIN J. WATSON.  
HORACE W. WILLSON.

Witnesses:

EDWIN E. MOORE,  
CHAS. D. GAY.