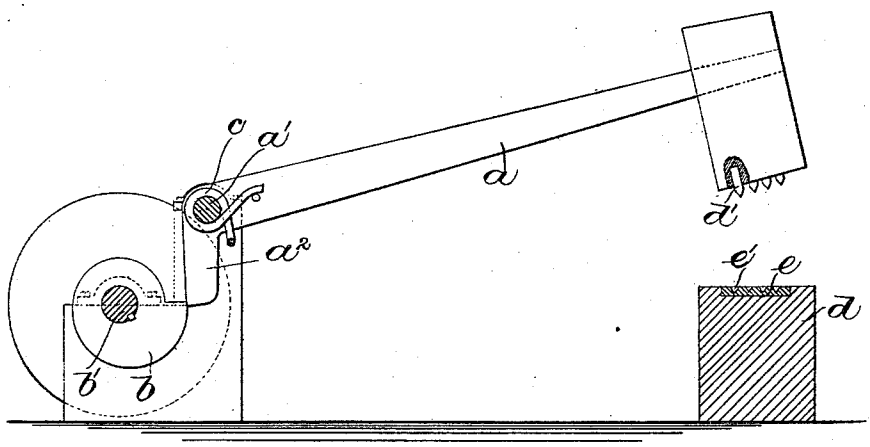
(No Model.)

W. H. WATSON.

METHOD OF STIFFENING AND INCREASING THE RESILIENCY OF METAL STRIPS.

No. 458,381. Patented Aug. 25, 1891.



Witnesses.
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UNITED STATES PATENT OFFICE.

WALTER H. WATSON, OF BOSTON, MASSACHUSETTS.

METHOD OF STIFFENING AND INCREASING THE RESILIENCY OF METAL STRIPS.

SPECIFICATION forming part of Letters Patent No. 458,381, dated August 25, 1891.

Application filed December 24, 1890. Serial No. 375,712. (No model.)

To all whom it may concern:

Be it known that I, WALTER H. WATSON, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in the Method of Stiffening and Increasing the Resiliency of Metal Strips, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

For many purposes—as, for instance, for shank-stiffeners for boots and shoes, corset-stiffeners, and the like—metal strips are desired which possess great resiliency, yet which will not readily break. For this purpose steel strips have been used, but owing to the frangibility of the material it is very objectionable. Soft or steelified iron has also been employed; and to increase the stiffness and resiliency of strips made of this material they have been curved transversely and longitudinally; but after short usage these strips lose their resiliency and become set.

This invention has for its object the production of a method of stiffening and increasing the resiliency of metal strips; and it consists in forming a series of indentations in the strip at that part where such stiffness and resiliency are desired.

In carrying out this invention the indentations may be made with any suitable implement or gang of punches, and they may be made of any suitable depth and any desired distance apart, care being taken that they do not pierce the material of the strip. These indentations form cavities the molecular structure of the side walls of which is more compact than the molecular structure of the strip. By such indentations a strip of iron—such, for instance, as the so-called "Bessemer" or like steel, which is very ductile—may be utilized.

The indentations may be made quite close together or some distance apart, depending upon the amount of resiliency required, and they may be made of any shape desired, although if made with a pointed device a much better result is accomplished than if made with a blunt instrument.

The drawing shows in side elevation a machine for indenting metal strips to carry out this invention.

The machine herein shown for carrying out this invention consists of an arm a, pivoted at a' and having a projection a^2 on it at right angles with relation to said arm which is acted upon or engaged by a cam b, secured to a shaft b' and rotated by any suitable means. An actuating-spring c surrounds the pivot of the arm, one end of which is attached to a fixed point and the other end to the arm. The cam b acts to raise the said arm against the tension of its actuating-spring c, and as soon as said cam passes by the projection c the arm a falls. The outer end of the arm a carries a series of pointed tools or devices d', and the metallic strip to be indented is laid on the anvil d and struck by the pointed tools d'. I have represented a strip, as e, on the anvil d, which has been indented by the tools d', the indentations being represented at e'. It is of course obvious that the results obtained can be accomplished in many different ways.

I claim—

The method herein described of stiffening and increasing the resiliency of metal strips, which consists in indenting but not piercing the side of the strip, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER H. WATSON.

Witnesses:

BERNICE J. NOYES,

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