

# United States Patent Office.

HENRY DISSTON, OF PHILADELPHIA, PENNSYLVANIA.

*Letters Patent No. 64,954, dated May 21, 1867.*

## IMPROVED PROCESS OF TREATING STEEL BLADES, &c.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, HENRY DISSTON, of Philadelphia, Pennsylvania, have invented a Mode or Process of Treating Steel Blades and other thin pieces of steel; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists in refining or condensing and straightening blades, or other thin pieces of steel, by impact or pressure, immediately after they have been reduced to the desired temper, and while they are still hot, so that the usual tedious and expensive manipulation, which has to be resorted to in straightening cold-tempered blades, may be abandoned, and uniform elasticity obtained.

Before I proceed to describe the manner of carrying out my invention, it will be well to allude to the usual process of tempering and otherwise treating articles of thin steel to which it is necessary to impart elasticity and a given degree of hardness. The blade of an ordinary hand-saw may be selected as an example of an article to which these qualities are imparted in the usual manner.

The blade is first cut from ordinary merchantable sheet steel to the desired shape, after which it is placed in a suitable furnace, and made red hot. In this state it is plunged into a bath of oil, which renders the blade hard and brittle—too much so to be of any use as a saw-blade. Hence it becomes necessary to diminish its hardness, and at the same time to impart to it the desired elasticity. This is done by heating the blade until its surface assumes a given color, which indicates to a certainty its assumption of the desired properties, when the blade is instantly withdrawn from the fire, and permitted to cool by exposure to the air.

It has been deemed unnecessary to allude, in the above brief description, to the mode of cutting the teeth and grinding the blade.

After being subjected to the above-described treatment, the blade is in such a warped or buckled condition as to involve the necessity of submitting it to the process of hammering, to which there are two serious objections: first, the process cannot be accomplished without tedious and expensive manipulation by skilled mechanics; second, the necessity of hammering the blade more in some places than in others results in making it harder at some points than at others, and frustrates the attempts to attain a uniform elasticity.

I obviate these objectionable features by the following simple process: When the blade has been reduced to the desired color and temper by heating it, as described above, I do not permit it to cool, as usual, but subject it at once, while still hot, to the blows of a rapidly operating power-hammer, the face of the hammer and that of its anvil being of proper truth and smoothness, after which the blade is permitted to cool. By hammering the blade when cold, as usual, the condensation of the fibres is not perfect or equal throughout, but by hammering while hot, in the manner described, the effect is different, the blade being quickly straightened without resorting to tedious manipulation; at the same time the desired temper and refinement of the steel is uniform throughout. Instead of using a power-hammer, the blade may be subjected to pressure between a suitable system of straightening-rolls. Whether impact or pressure, however, be employed, the blade should be acted on while still hot, otherwise the desired effect will not be produced so perfectly.

I claim as my invention, and desire to secure by Letters Patent—

The within-described mode or process of treating blades or other thin pieces of steel; that is to say, straightening and condensing them by impact or pressure, immediately after they have been reduced to the desired temper, and while they are still hot, as described.

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

HENRY DISSTON.

Witnesses:

CHARLES E. FOSTER,  
WM. HALL WAXLER.