

# United States Patent Office.

FREDERICK C. CURIE, OF LANCASTER, PENNSYLVANIA.

*Letters Patent No. 80,460, dated July 28, 1868.*

## IMPROVEMENT IN THE MANUFACTURE OF FILES AND RASPS.

*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, FREDERICK C. CURIE, of Lancaster, in the county of Lancaster, and State of Pennsylvania, have invented a new and useful Improvement in Converting Iron Files and Rasps into Steel; and I do hereby declare the following to be a full and correct description of the same, sufficient to enable others skilled in the art to which my invention appertains to fully understand and use the same.

The nature of my invention consists in converting file or rasp-blanks, which have been cast, into steel, by converting them, first, into malleabilized iron, and then into steel, by the process hereinafter described.

To carry out my invention, I cast the file or rasp-blanks in any well-known manner. I then convert them into what is known as "cast-malleable," or "malleabilized" iron, by the well-known process of heating, and then into steel, by the following process:

I take a mixture of the following ingredients:

Thirty parts of charcoal, pulverized.

Three parts of soda or soda-ash.

One part of rock-salt.

These ingredients I mix well, and cover the bottom of an iron box, such as is used in the process of cementation, with them. On this layer of ingredients I place a layer of file or rasp-blanks, then another layer of ingredients, and another layer of file or rasp-blanks, and so on until the box is filled, when it is closed air-tight and placed in a converting-furnace, where I subject it to the heat from two to eight hours, according to the quality of the iron and ingredients. Under favorable circumstances I have converted files and rasps in two hours.

I do not confine myself to the exact proportion of ingredients, but substantially to the proportion named.

Instead of converting the cast blanks into malleable ones, I can form or stamp them from wrought or cast malleable iron, and then convert them into steel.

I do not broadly claim to convert all kinds of iron articles into steel by my process, but confine myself to files and rasps.

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

1. Converting files and rasps, either cast, or made from wrought or cast malleable iron, into steel, by the process substantially as herein described.

2. Also the new articles of manufacture, namely, files and rasps made by the process substantially as herein described.

F. C. CURIE.

Witnesses:

ALEX'R A. C. KLAUCKE,

BRITAIN ZAYOFF.