UNITED STATES PATENT OFFICE.

CHARLES A. HUESTIS, OF ELMHURST, NEW YORK.

SOLUTION FOR AND PROCESS OF HARDENING STEEL.

1,310,020. Specification of Letters Patent. Patented July 15, 1919.

No Drawing. Application filed October 10, 1918. Serial No. 257,644.

To all whom it may concern:

Be it known that I, CHARLES A. HUESTIS, a citizen of the United States, residing at Elmhurst, in the county of Queens and State of New York, have invented certain new and useful Improvements in Solutions for and Processes of Hardening Steel, of which the following is a specification.

The present invention relates more particularly to a means and method of hardening steel, and especially high speed steel, one of the principal objects being to provide a composition that is relatively inexpensive, and can be utilized by a comparatively inexperienced person.

The solution is composed of kerosene oil, commercial yellow soap and salt, preferably in substantially the proportions of four pounds of soap, three gallons of kerosene oil, and one quarter pound of salt.

In preparing the mixture, the soap is preferably first cut into fine shavings and stirred with the salt into the kerosene oil.

In use, high speed steel is heated, preferably to as high a temperature as possible, short of causing fluidity, and when so heated, is plunged into the above solution. Where tools are to be hardened, it is only necessary to heat the nose or cutting portion of the tool, but it is preferable to submerge the entire implement in the solution and to leave it therein until it is entirely cold.

Experience has demonstrated that high speed steel subjected to this process is made harder and tougher.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In a composition for hardening steel, a mixture of soap and kerosene oil.

2. In a composition for hardening steel, a mixture of soap, kerosene oil and salt.

3. In a composition for hardening steel, a mixture of soap and kerosene oil approximately in the proportions of four pounds of soap to three gallons of kerosene oil.

4. In a composition for hardening steel, a mixture of soap, kerosene oil and salt in approximately the proportions of four pounds of soap, three gallons of kerosene oil, and one-quarter pound of salt.

5. The method of hardening steel, which consists in heating the same and applying thereto commercial soap and kerosene oil.

6. The method of hardening high-speed steel, which consists in heating the same to nearly the point of fluidity, and applying thereto commercial soap and kerosene oil.

In testimony whereof, I affix my signature in the presence of two witnesses.

CHARLES A. HUESTIS.

Witnesses:

WILLIAM HARRISON ROBINSON,

HAZEL TAEGE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."