

UNITED STATES PATENT OFFICE.

ALEXANDER H. SIEGFRIED, OF LEWISBURG, PENNSYLVANIA.

IMPROVEMENT IN PROCESSES OF RENDERING CAST-IRON MALLEABLE.

Specification forming part of Letters Patent No. **131,634**, dated September 24, 1872.

To all whom it may concern:

Be it known that I, ALEXANDER H. SIEGFRIED, of Lewisburg, Union county, State of Pennsylvania, have invented a new Method of Rendering Cast-Iron Malleable, of which the following is a specification:

My invention relates to the preparation of malleable iron from cast-iron by mixing with the molten fluid-iron, before running into molds, a certain chemical compound, and then immersing in a bath or pickle the object cast, said bath containing, in solution, certain chemicals, and then annealing the casting so treated.

The compound which I mix with the molten iron is composed of the following ingredients in the following proportions, viz.: Concentrated lye, one pound; sal-soda, one pound; sulphate of copper, one and one-half pound; sal-ammoniac, one pound; sulphate of potash, one-fourth pound; nitrate of potash, one-fourth pound; common salt, three and one-fourth pounds. I use of this compound from four to five pounds to every hundred pounds of iron to be treated. This compound may be mixed with the iron while still in the furnace, or may be mixed with the molten iron after it is drawn from the furnace into the ladle and before it is poured into the molds. When the former method is adopted the iron is melted quite thin, and the damper to the furnace is closed and the blast taken off, and the compound put into the iron and the mass worked thoroughly for a few minutes; then the damper is opened and the blast put on and a strong flame created, so as to expel the gases and other impurities. When the compound is put into the ladle the iron should be stirred freely,

that a thorough mixture may take place. The metal into which this compound has been put having been run into the molds, I take out the casting while it is at a low cherry-red heat and plunge it in a bath or pickle composed of the following ingredients in the following proportions, viz.: Water, one gallon; concentrated lye, one ounce; sulphate of copper, one ounce; alum, one ounce; sal-soda, one ounce; sal-ammoniac, one ounce; common salt, eight ounces; sulphate of potash, half ounce.

The casting, when cooled, is removed from the bath and annealed in the ordinary manner for from three to eight hours.

Claims.

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

1. The employment, in making malleable iron, of the processes substantially as described above.
2. The compound herein described for mixing with molten iron prior to its being run into molds.
3. The bath hereinbefore described for treating cast-iron.
4. The use, in making malleable iron, of the compound and bath, as hereinbefore substantially described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

ALEXANDER H. SIEGFRIED.

Witnesses:

CHAS. A. NEALE,
ROBT. V. HUGHES.