

UNITED STATES PATENT OFFICE.

FIDEL BERCHTOLD, OF CLEVELAND, OHIO, ASSIGNOR TO HIMSELF, THEODORE F. BERCHTOLD, SAMUEL THORMAN, ALOIS SCHWEIZER, CHARLES B. BERNARD, AND JOHN S. EDWARDS, OF SAME PLACE.

IMPROVEMENT IN PROCESSES OF MANUFACTURING STEEL.

Specification forming part of Letters Patent No. **170,150**, dated November 23, 1875; application filed September 27, 1875.

To all whom it may concern:

Be it known that I, FIDEL BERCHTOLD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Process for the Manufacture of Steel; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make steel according to my invention.

This invention relates to that class of processes employed in the manufacture of steel; and it consists in melting iron and a mass consisting of various ingredients in proper proportions, as will hereinafter more fully and at large appear.

In carrying out my invention, for the purpose of preparing the said mass, take of pulverized cyanide of potassium, say, two pounds; of pulverized prussiate of potash, say, one-half pound; of borate of soda, say, two-and-a-half pounds; of silicate of lead, (which may be white glass or any vitreous compounds of lead,) one pound; of bichromate of soda, one-half pound; of charcoal, preferably ash-wood charcoal, one pound; of vegetable oil, preferably boiled linseed-oil, two ounces; and of liquid gum-arabic a sufficient quantity to reduce the above-named ingredients, when mixed thoroughly together, to a pasty consistency. Allow the mass thus mixed to dry,

when it may be pulverized or broken up for more convenient handling.

In preparing the iron for melting, mix with every twenty-five pounds of the same one ounce, more or less, of the said mass. If the iron is hard a less quantity of the mass will answer, but if soft a greater quantity of the mass will be necessary.

The result of melting the iron and the mass herein described in substantially the proportions named will be the production of a steel of high quality, susceptible of any degree of tempering, of being readily rolled, and of being put to all uses to which steel is capable.

What I claim as my invention is—

The process herein described of manufacturing steel, consisting of melting together iron and a mass composed of the following ingredients, to wit: Cyanide of potassium, prussiate of potash, borate of soda, silicate of lead, (white glass), bichromate of soda, charcoal, gum-arabic, and linseed-oil, in the proportions and in the manner, substantially as herein set forth.

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

FIDEL BERCHTOLD.

Witnesses:

LEVERETT L. LEGGETT,
H. T. HOWER.