

United States Patent Office.

HENRY A. LAUGHLIN, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 85,529, dated January 5, 1869.

IMPROVED "COLD-FIX" FOR LINING IRON-CHILLS, MOULDS, PIG-BEDS, &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 A. LAUGHLIN, of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented or discovered a certain new and useful Composition as a "Cold-Fix," for Lining Iron-Chills, Moulds, Pig-Beds, &c., into which molten metal is run from a blast-furnace; and that the following is a full, clear, and exact description of the same, and of the objects and purposes to be obtained by its use.

Raw ores, in a pulverized state, have been heretofore-used in various ways in connection with the manufacture of iron. I lay no claim to any such process or use of raw ores, individually; but I have discovered that a compound of pulverized raw ore and of salt can be used, (not generally, but specifically,) in the chills, moulds, or pig-beds, and very much improve its quality for the subsequent working of the iron in a puddling or boiling-furnace; and

My invention relates to a compound of raw ore and salt, as a "cold-fix," for lining chills, moulds, pig-beds, &c., preparatory to their receiving the molten metal from the blast-furnace.

To enable those skilled in the art to make and use my invention, I will proceed to describe the same, as follows:

For the lining of a chill or mould, that will hold, say, one hundred pounds of iron, I take, about six pounds of chloride of sodium, or other salts of soda, and mix with it from six to ten pounds of pulverized ore, (raw iron-ore.) The salt gives to the mixture a degree of dampness sufficient to cause this composition

to lie upon the flaring sides of the chill or mould, without putting it into a pasty condition.

The bottom and sides of the chill or mould, or pig-bed, are covered with this composition, and when a sufficient number are so prepared, the molten metal is run into them from the blast-furnace.

The oxidizing-property of this cold-fix has the effect of partially oxidizing the iron, and so making its after-working in the puddling or boiling-furnace comparatively easy and expeditious.

A portion of the cold-fix may become thoroughly incorporated with the iron, and the portion that does not so become a part of the iron is worked out in the after-process or treatment. The quality of the iron is improved by this "cold-fix" lining; and there is an after-saving in labor and fuel in the subsequent working of the metal in puddling or boiling-furnaces, and with a less percentage of loss than when the metal is cast in chills or moulds, without using the "cold-fix" lining.

Having thus fully described my invention,

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

A "cold-fix" composition for lining chills, moulds, or pig-beds, made of pulverized raw iron-ore and salt, substantially in the manner, proportions, and for the purpose of receiving molten metal from a blast-furnace, and partially oxidizing the metal, as and for the purpose described.

Witnesses: HENRY A. LAUGHLIN.

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