

UNITED STATES PATENT OFFICE.

BOYD C. LEAVITT, OF NEWPORT, MAINE, ASSIGNOR TO JOS. S. BISHOP AND
RD. H. LIBBEY.

IMPROVEMENT IN COMPOUNDS FOR UNITING STEEL AND IRON.

Specification forming part of Letters Patent No. 9,159, dated July 27, 1852.

To all whom it may concern:

Be it known that I, BOYD C. LEAVITT, of Newport, in the county of Penobscot and State of Maine, have invented or discovered a new and useful improvement of a composition of matter and mode of applying the same so as to cause the adhesion of cast-steel, steel of other kinds, wrought-iron, and cast-iron with cast-iron and form a perfect and permanent union of the two metals as indissolubly as if they were one solid piece; and I do hereby declare that the following is a full and exact description thereof, and of the manner of preparing the crude material and of compounding the several kinds, with the proportions of each and the manner of using the composition after the same has been compounded.

The nature of my invention or discovery consists in taking any quantity of crude borax and (after putting it in any convenient vessel) submit the same to the action of heat gradually and sufficiently so far as may be necessary to evaporate all the moisture contained in the crude borax and reduce it to a perfectly calcined state. Then let the calcined borax gradually attain a red heat. After this is accomplished let it cool, and when co'd add of the carbonate of ammonia in weight to the calcined borax one-eighth of the weight of the borax in its crude state, and then pulverize the composition or mixture into a fine powder, so as to be well and uniformly mixed.

The cast-steel, steel of other kinds, wrought-iron, or cast-iron to be united with the cast-iron must be placed in the mold or arranged properly, and as desired to suit each circum-

stance, in the flask or other approved manner of receiving the casting, first polish that part of the cast-steel or steel of other kinds, wrought-iron, or cast-iron to be united to the cast-iron. When all is arranged ready to receive the molten iron, then sift over the brightened parts as much of the amalgam or compound powder as will cover the same. Pour on the molten iron either immediately, or you can do so at any time within twelve hours, and the adhesion of the two metals will be perfect and indissoluble.

I wish it understood I do not claim the use of crude borax, either pulverized or not, for the union of metal, as this has been used for the purpose by others; but it does not insure a perfect union and cannot be relied upon with any degree of certainty, and great loss of time and materials often occur, as well as a ready separation of the two, even after a seeming union and the particular work seems complete and ready for the use intended; but

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

The mode and manner of calcining and preparing the crude borax and compounding the same afterward with the carbonate of ammonia, and in the proportions above set forth and described, and the mode of applying or using it or any other substantially the same, and which will produce the intended effect.

B. C. LEAVITT.

Witnesses:

I. H. PETERS,
J. CONNELLY.