

UNITED STATES PATENT OFFICE.

WILLIAM A. GIVENS, OF PITTSBURG, PENNSYLVANIA.

COMPOUND FOR USE IN STEEL-MAKING.

SPECIFICATION forming part of Letters Patent No. 735,748, dated August 11, 1903.

Application filed January 17, 1903. Serial No. 139,492. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM A. GIVENS, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Compounds for Use in Steel-Making; and I do 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 appertains to make and use the same.

My invention relates to improvements in processes and in substances used in connection therewith in working steel, and has for its object the facilitating of welding, closely uniting or concentrating the molecules or atoms comprising cast ingots, without the usual difficulties experienced and expense encountered.

It is well known that steel ingots as made by the crucible process require heavy hammering in order to condense the metal, which is technically termed and known as "welding," before they are in condition to be rolled into shape. The process hitherto employed has been accompanied and the results accomplished only by the extensive use of some form of power-hammer, involving great waste of time in performing the operations, which, in connection with the expense attendant thereto for power, machinery, and highly-skilled labor, materially affects the cost of the product.

My process does not differ from that commonly employed until after the cast is made. Then as soon as the ingot shall have set I remove it from the mold and bury it in a pit containing the following compound, made in practically these proportions: common salt, forty-four pounds; borax, forty-four pounds;

charcoal, twelve pounds, all of which are finely pulverized and intimately mixed. It is to be understood that the ingots so treated are taken from the mold as soon as their condition will permit, and hence are at a high temperature at the time of their being enveloped in this mixture and that they are allowed to remain therein until they have become cool. I have found that the steel ingots so treated do not require the hammer-welding process before rolling, the minute cracks and air globules not appearing as they invariably do in the untreated ingots. Furthermore, there is perceptibly less shrinkage found in rolling stock from ingots so treated, and, finally, that the steel can safely be exposed to and endure higher temperatures than that which has not been so subjected. Consequently I am able to effect a very considerable saving in expense in the actual manufacture or working of steel without changing the material elements of which it is constituted.

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

1. The herein-described soaking-bath, for cast-steel ingots, comprised of salt, borax and charcoal, conditioned and proportioned substantially as stated.

2. The herein-described soaking-bath comprised of salt and borax each forty-four parts, by weight, and charcoal twelve parts; all for the purposes as herein set forth.

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

WILLIAM A. GIVENS.

Witnesses:

A. E. ANDERSON,
CHARLES S. HOLMES.