

# UNITED STATES PATENT OFFICE.

EPHRAIM TUCKER, JR., OF WORCESTER, MASSACHUSETTS.

## PROCESS OF ANNEALING WIRE.

SPECIFICATION forming part of Letters Patent No. 308,447, dated November 25, 1884.

Application filed July 21, 1884. (No specimens.)

*To all whom it may concern:*

Be it known that I, EPHRAIM TUCKER, Jr., of the city and county of Worcester, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Processes of Annealing Wire and Covering it with a Metallic Coating; and I do hereby declare the same to be described as follows:

The process which prior to my invention has been adopted or used for annealing iron wire and coating it with a metal—such as zinc, for instance—has consisted in first running the wire through a bath of melted lead, thence into and through a solution of muriatic acid, and thence through the melted zinc. In this process there is formed in the tank or vessel containing the zinc a metallic substance or alloy usually termed “stodge,” it being heavier than the zinc and having a higher point of fusion, such alloy being composed of zinc and iron in the proportions of about ninety-five parts zinc to about five parts of iron. This residuum or alloy constantly accumulating in the zinc bath renders the zinc thereof in a measure, if not entirely, unfit for use.

One object of my invention is to utilize this material, which heretofore has had to be subjected to a process of distillation to obtain from it the zinc contained in it. To this end I have discovered that such alloy in a melted state may be substituted for melted lead, and the wire may be run through such melted alloy and be annealed by it to better advantage or with better results, and with a considerable saving of expense relatively to what would be incident to the use of lead. Therefore in carrying out my invention I first run the wire

through a bath of the melted alloy, and next and immediately through a solution of muriatic or other suitable acid, and next and immediately through the melted zinc. New and useful effects follow from the use of the iron and zinc alloy for annealing the wire in the process of galvanizing or coating it with the zinc, for the wire in passing through the bath of the alloy takes up more or less of the zinc thereof, and therefore requires a less amount of the metal of the zinc bath to complete the coating of it, (the said wire;) furthermore, the alloy when once heated retains its temperature longer than will the lead, and consequently requires a less expenditure of fuel to maintain it in a melted state.

I claim—

1. The improved method of annealing or treating iron or wire thereof and coating it more or less with zinc, such consisting in immersing the said iron or wire in or running it through a bath of the melted alloy, as described, consisting of iron and zinc, in or about the proportions as set forth.

2. The mode, substantially as described, of treating iron or wire thereof for the purpose of imparting to it a metallic coating, such consisting in first immersing the said iron or wire in or passing it through a bath of melted alloy of iron and zinc, as explained, and next immersing it in or passing it through an acid solution, and finally immersing it in or passing it through melted zinc or metal.

EPHRAIM TUCKER, JR.

Witnesses:

R. H. EDDY,  
S. N. PIPER.