

UNITED STATES PATENT OFFICE.

HOWARD CORNICK, OF KNOXVILLE, TENNESSEE, ADMINISTRATOR OF
CHARLES L. LEIBY, DECEASED, ASSIGNOR TO THE LEIBY COMPANY,
OF SAME PLACE.

PROCESS OF RENDERING COPPER WELDABLE.

SPECIFICATION forming part of Letters Patent No. 662,251, dated November 20, 1900.

Application filed October 29, 1900. Serial No. 34,856. (No specimens.)

To all whom it may concern:

Be it known that I, HOWARD CORNICK, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, administrator of the estate of CHARLES L. LEIBY, deceased, late a citizen of the United States, hereby make application for Letters Patent for certain new and useful Improvements in Processes of Rendering Copper
5 Weldable, invented by the said CHARLES L. LEIBY, of which the following is a specification.

Said invention has for its object the converting of copper and alloys thereof from their
15 natural non-weldable condition into a physical condition in which they are weldable, at the same time improving their character as to strength and toughness; and it consists in a process of preparing said metals by a treatment with a chemical compound, whereby
20 the object is accomplished, as will be herein-after more fully described and claimed.

The compound consists of potassium nitrate and a cyanid (potassium cyanid, potassium
25 ferri or ferro cyanid, or a mixture) in the proportion of about a pound of the potassium nitrate to ten grains of the cyanid.

The process of treating the copper consists in placing it in a vessel of suitable size and
30 construction (sheet-iron of proper thickness will do) and putting therein a sufficient quantity of the compound that when melted it will substantially cover or immerse the metal. The vessel is then subjected to heat sufficient
35 to melt or fuse the compound, and said metal is then left in the bath thus formed until the desired chemical action has taken place. Two or three hours will usually be found sufficient, and less time may be required in some
40 cases for results of different degrees.

Ten pounds of copper have been treated in a vessel with one pound of potassium nitrate and ten grains of the cyanid and perfect results secured, the copper so treated being readily worked and weldable. While perfect results have been secured with the proportions

as above stated, it will be understood that they may be considerably varied without departing from the invention. It will be understood, further, that the quantity of compound
50 or metal is not material so long as the proportions in the compound are such as to secure the desired result. The same compound may be used the second time in some cases, as has been demonstrated in experiments. Copper
55 so treated can be melted, then cast into any desired form, and then welded, if desired. About twenty grains of borax have been added to the compound above specified and the results found satisfactory. 60

It will be understood, of course, that the several parts composing the compound need not be mixed before being placed in the vessel with the metal to be treated, as they will mix upon melting without further attention. 65

Having thus fully described the said invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. The process of rendering copper and alloys thereof weldable and malleable which
70 consists in placing them in a vessel with a fused compound containing potassium nitrate and a cyanid, substantially as set forth.

2. The process of rendering copper and alloys thereof malleable and weldable which
75 consists in placing them in a vessel with a compound containing potassium nitrate and a cyanid in the proportion of about one pound of the potassium nitrate to ten grains of the cyanid, and subjecting the whole to a heat
80 sufficient to fuse said compound, and allowing it to stand until the desired chemical action has taken place, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Knoxville, Tennessee, this
85 25th day of October, A D. 1900.

HOWARD CORNICK. [L. S.]
Administrator of the estate of Charles L. Leiby, deceased.

Witnesses:

CHARLES T. CATES, Jr.,
J. H. FRANTZ.