UNITED STATES PATENT OFFICE.

STEPHEN L. MERSHON, OF CHICAGO, ILLINOIS.

PROCESS OF DRAWING WIRE.

SPECIFICATION forming part of Letters Patent No. 460,726, dated October 6, 1891.

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To all whom it may concern:

Be it known that I, STEPHEN L. MERSHON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Processes of Drawing Wire; and I do hereby 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 the application to the surface of wire rods or wires after the cleaning and before the drawing or reducing process of a coating or lubricant of tin salts, such coating in the wire-drawing process constituting not only a lubricant, but also a means for imparting a polished tin surface to the wire during the drawing or reducing operation.

In the practical carrying out of my present invention the wire is first cleaned in any usual and suitable manner, after which it is passed through or otherwise immersed in the bath of tin salts, and then drawn through the reducing-dies, &c. I have attained superior results from the use of a bath of the following composition: tin salts, thirty ounces; alum, thirty ounces; cream of tartar, twenty ounces, and water, sixty gallons. By immersion in such bath I secure a deposit of tin on the wire, and by withdrawing the wire and immersing in a suitable bath of a tin-reducing reagent, preferably composed of carbonate of magnesia, fifteen ounces, to water, fifteen gallons, I am enabled to draw the wire while wet through the usual die or plate, so as to attain a polished coating of tin on the finished wire as it leaves such die or other reducing means.

In use the best results are attained by bringing the bath to nearly a boiling-point by means of a suitably-immersed steam-coil or other suitable heating appliance applied to the vat or tub containing the solution.

In my improved art of drawing wire the tin-salt solution or bath acts both as a lubricant coating for the wire in the drawing operation as well as a means for imparting a polished tinned surface thereto, the presence of which tinned surface on the wire enables more drafts to be drawn than could otherwise be effected in the ordinary process of drawing wire.

The "tin salts" mentioned in the foregoing formula and elsewhere have reference to the sulphate or muriate of tin, which are commercially known as "tin salts." I do not, however, limit my invention to such particular salts of tin, and any other tin-salt—such, for instance, as acetate of tin—may be substituted therefor without departing from the spirit of this part of my invention; and, likewise, instead of a solution, as above mentioned, the tin salts may be employed in a mass form of a more or less pasty nature to attain the desired results in a less satisfactory manner.

The use of the before-mentioned reducing-bath of carbonate of magnesia or other tin-reducing reagent is not an absolute requisite in my present process, and in some particular instances it may be dispensed with. Its use is, however, preferable, as affording the greatest perfection to my present process.

I am aware that the use of tin as a coating for wire is not new, and therefore make no claim in a broad sense to its use, my present invention being limited to the use of tin salts applied as a coating subsequent to the cleaning and prior to the reduction of the wire and as distinguished from the usual mode of securing a tin finish to wire, in which it has been necessary to tin the wire in an electroplating bath, which is a very slow and costly process, mainly owing to the fact that the individual coils of wire must be kept free from contact with each other.

Having thus fully described my improvement in the art of wire-drawing, what I claim as new, and desire to secure by Letters Patent, is—

1. An improvement in the art of making tinned wire, the same consisting in first cleaning the wire, then coating with tin by immersion in a tin-salts bath, and finally reducing the wire by drawing through a die or otherwise, essentially as described.

2. An improvement in the art of making tinned wire, the same consisting in first cleaning the wire, then coating with tin by immer-

sion in a tin-salts bath, and finally reducing the wire by drawing through a die or otherwise while in a wet state, essentially as set forth.

3. An improvement in the art of making tinned wire, the same consisting in first cleaning the wire, then coating with tin by immersion in a tin-salts bath, the subsequent immersion in a bath of a suitable tin-reducing reagent, and finally reducing the wire by drawing through a die or otherwise, essentially as set forth.

4. An improvement in the art of making tinned wire, the same consisting in first cleaning the wire, then coating with tin by immersion in a tin-salts bath, the subsequent immersion in a bath of a suitable tin-reducing reagent, and finally reducing the wire by drawing through a die or otherwise while in a wet state, essentially as set forth.

5. An improvement in the art of making tinned wire, the same consisting in first cleaning the wire, then coating with tin by immersion in a bath of tin salts, alum, and cream of tartar, and finally reducing the wire by drawing through a die or otherwise, essentially as set forth.

6. An improvement in the art of making tinned wire, the same consisting in first cleaning the wire, then coating with tin by immersion in a bath of tin salts, alum, and cream of tartar heated to near the boiling-point, and finally reducing the wire by drawing through a die or otherwise, essentially as set forth.

7. An improvement in the art of making tinned wire, the same consisting in first cleaning the wire, then coating with tin by immersion in a bath of tin salts, alum, and cream of tartar heated to near the boiling-point, the subsequent immersion in a bath of carbonate of magnesia or like reducing reagent, and finally reducing the wire by drawing through a die or otherwise, essentially as set forth.

In testimony of which invention witness my hand this 21st day of February, 1891.

STEPHEN L. MERSHON.

In presence of—

JOHN T. NICKERSON,

GEO. H. ARTHUR.