

(No Model.)

F. H. DANIELS.
MANUFACTURE OF TINNED WIRE.

No. 573,573.

Patented Dec. 22, 1896.

Fig. 1. ↓

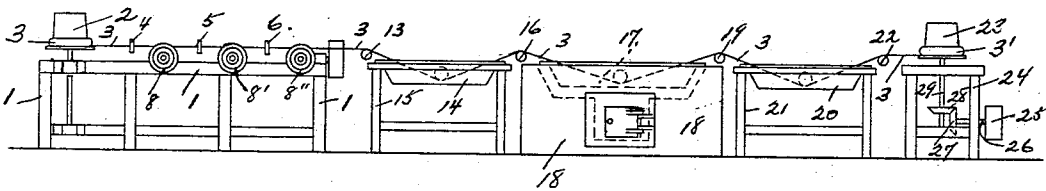
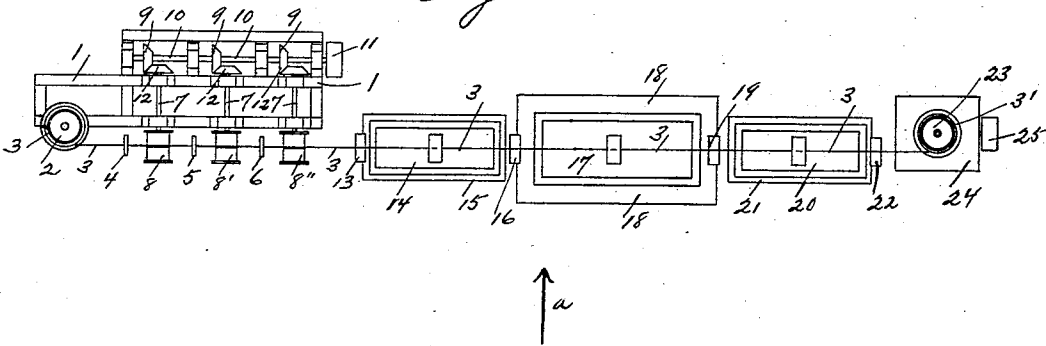


Fig. 2.



Witnesses

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MANUFACTURE OF TINNED WIRE.

SPECIFICATION forming part of Letters Patent No. 573,573, dated December 22, 1896.

Application filed January 2, 1895. Serial No. 533,550. (No model.)

To all whom it may concern:

Be it known that I, FRED H. DANIELS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in the Manufacture of Tinned Wire; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to the manufacture of wire coated with metal, and more particularly to wire coated or plated with tin or zinc, which is generally called "tinned wire," and is used for various purposes, such as woven-wire bed-springs, &c.

In the process of manufacture of tinned wire as now practiced the wire to be tinned is in a coil and is placed on a reel and one end of the coil passed through a drawing-die and then wound upon a winding-block to draw or reduce the wire to the desired size for tinning. This operation may be repeated a number of times and each time the wire is removed from the winding-block and placed on another reel to be again passed through the drawing-die and wound on another winding-block. After the wire is drawn down to the desired size to be used for tinning it is removed from the winding-block upon which it was last wound and placed upon a reel, and one end of the coil passed through the tinning apparatus, consisting, ordinarily, of a tank of acid for cleaning the wire, a tinning or plating furnace, and a tank of water for cooling the tinned or plated wire, to the winding-block upon which the finished tinned wire is wound.

The above-described process of manufacture of tinned wire is not a continuous process, but involves several different processes or steps independent of each other, and several different handlings of the wire, thus consuming time and increasing the cost of the tinned wire.

The object of my invention is to improve upon the old process of manufacture of tinned or plated wire above described and to provide an improved process of manufacture which is continuous from the beginning to

the end and in which there is no handling or rehandling of the wire and no removal of the wire from the time it is placed on the first reel to the time it is tinned and wound on the winding-block after passing through the tinning or plating apparatus.

By my invention I am enabled to save much time in the manufacture of the tinned wire and much labor, thus reducing materially the cost thereof.

I have shown in the drawings one form of apparatus for carrying out my invention.

Referring to the drawings, Figure 1 is a side view of an apparatus for manufacturing tinned or plated wire by my process, showing a single strand of wire and looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a plan view looking in the direction of arrow *b*, Fig. 1.

I have shown in the drawings a wire-drawing frame provided with three sets of reducing-dies adjusted to draw or reduce the wire to the desired size for tinning, the size of the dies being graduated from larger to smaller, as is customary. I have also shown in the drawings, combined with said drawing-frame, a tinning or plating apparatus consisting of an acid-tank, a tank for holding the melted tin or other metal with which the wire is to be plated, said tank combined with a furnace for heating said metal, and a third tank for holding water or other liquid to cool the tinned wire, and a winding-block, as is customary.

In the accompanying drawings, 1 is a wire-drawing frame having in this instance one upright reel 2 mounted thereon, upon which the coil of wire 3 to be drawn or reduced in size and tinned or plated is mounted. Upon the frame 1 are supported in this instance three sets of reducing-dies 4, 5, and 6, graduated in size from 4 to 6, to reduce the wire 3 to the desired size for tinning. Also upon the frame 1 are mounted in suitable bearings the shafts 7 of three drums 8, 8', and 8". Each drum is placed in front of one set of reducing-dies, and said drums are operated to draw the wire 3, wound once or more around each drum, through the reducing-dies 4, 5, and 6, in this instance by beveled gears 9, fast on shaft 10, driven by belt (not shown) on pulley 11 on said shaft.

Beveled gears 9 mesh with beveled gears 12 on the shafts 7 of said drums 8, 8', and 8''. From the last drum 8'' the wire 3, drawn to the desired size for tinning, passes over a roll 13 directly into the cleaning-acid contained in the tank 14, supported on a frame 15, and from said tank 14 over a roller 16 and into the melted tin or zinc or other metal in the tank 17, supported over the heating-furnace 18, and from said tank 17, in which the wire is tinned or plated with the melted metal, over a roll 19 into the water or other liquid in the cooling-tank 20, supported on a frame 21, and over a roll 22 to the upright winding-block 23, mounted in a frame 24, upon which block the finished tinned or plated wire is wound in a coil 3'. The block 23 is operated by a belt (not shown) passing around a pulley 25 on a shaft 26, carrying a beveled gear 27, meshing with a beveled gear 28 on the shaft 29 of the block 23.

From the above description, in connection with the drawings, my improvement in the manufacture of tinned or plated wire will be readily understood by those skilled in the art, and the advantages thereof will be readily appreciated.

It will be seen that under my invention the process of manufacture of tinned or plated wire is continuous from the time the coil of wire to be drawn or reduced to the desired size and tinned or plated is placed on the reel 2 until it is wound on the winding-block 23 after being tinned or plated, thus requiring no handling or rehandling from the beginning to the end of the process, so that the wire passes directly from the

drawing-die to the tinning apparatus in a highly-polished condition without any dust or dirt collecting thereon.

I have shown in the drawings only one strand of wire 3, but, as will be understood by those skilled in the art to which the invention pertains, the apparatus in practice is organized and arranged in such manner that six or more wires are treated at the same time.

I do not limit myself to the particular apparatus shown in the drawings and above described for carrying out my invention, as any other suitable apparatus may be used.

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

1. In the manufacture of tinned or plated wire, the combination of a drawing-frame, a winding-block, and a tinning or plating apparatus between the drawing-frame and winding-block, to manufacture tinned or plated wire by a continuous process, substantially as set forth.

2. In the manufacture of tinned or plated wire, the combination with the drawing-frame, and the winding-block, of the acid-tank, the metal-tank containing the melted tin or other metal, and the cooling-tank located intermediate said drawing-frame and winding-block, to manufacture tinned or plated wire in a continuous process, substantially as set forth.

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