

(No Model.)

G. U. MEYER.
PLATED WIRE.

No. 443,698.

Patented Dec. 30, 1890.

Fig. 1.

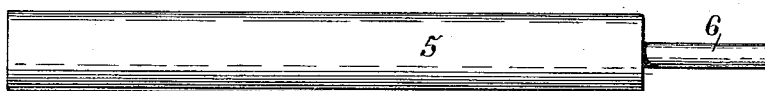


Fig. 2.

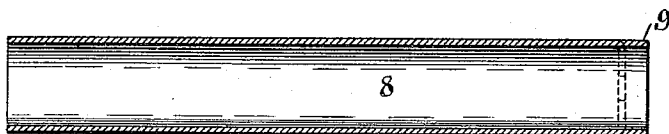
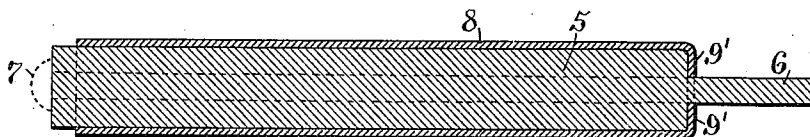


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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PLATED WIRE.

SPECIFICATION forming part of Letters Patent No. 443,698, dated December 30, 1890.

Application filed October 21, 1890. Serial No. 368,783. (No model.)

To all whom it may concern:

Be it known that I, GEORGE U. MEYER, of Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Plated Wire; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in the process for making the ingots from which plated wire is drawn; and it consists in the peculiar and novel steps by which a tube of plating metal is secured to a suitable core, as will be more fully set forth hereinafter.

In the manufacture of plated wire a core of inferior metal, usually brass, either in the form of a tube or a solid cylinder, is covered with a tube of precious metal or with a tube the inner portion of the walls of which is made of brass or other inferior metal plated on the outside with precious metal, the core and the plating-tube being secured together by a solder fusible at a lower temperature than the metal or metals of the plating-tube and the core. In plating the core with the tube it is essential that the solder be evenly distributed between the core and the plating-tube and that the solder interposed between the core and plating-tube shall form the thinnest possible film, so that the wire drawn from such ingot shall contain no surplus solder liable to flow from the wire when subjected to heat in the subsequent manipulations required in making jewelry. To this purpose I either roll the plating-tube onto the core so tightly that only a very thin film of solder intervenes, or I draw the core and plating-tube through holes in a draw-plate until the plating-tube and core are in close contact before the ingot is subjected to heat to fuse the solder. To do this successfully the plating-tube must be firmly held to the core, so as to resist the strain of the rolls or draw-plate on the plating-tube.

Figure 1 is a side view of a cylindrical core of inferior metal provided with a projecting central draw-pin. Fig. 2 is a longitudinal sectional view of a plating-tube; and Fig. 3 is a longitudinal sectional view of the improved ingot, indicating in broken lines the construc-

tion of the draw-pin when a tubular core is used.

In the drawings, the number 5 indicates the cylindrical core provided at one end with the projecting draw-pin 6, which pin may be formed out of one piece with the cylindrical core or may be secured to the same. When the cylindrical core 5 is a tube of brass or other inferior metal, the draw-pin 6 extends through the tube, and is provided at the opposite end with the head 7, so that a strain exerted on the draw-pin 6 will be transmitted to the walls of the tube by the head 7.

The number 8 indicates a tube of plating metal, consisting either entirely of precious metal or inferior metal plated on the outside with precious metal. The plating-tube 8 may be made in any desired manner with or without a seam; but a seamless tube is preferable, as it produces a better wire.

In carrying out my invention I take a tube of plating metal and burnish or bend the end 9 of the tube 8 inward, so as to form an annular inward-projecting rim 9', which, when the tube is drawn over the core, will bear against the end of the core, as is shown in Fig. 3. After cleaning the core I cover the same with powdered or finely-granulated solder mixed with a powdered or granulated flux and water or other suitable liquid, so as to form a paste. I now place the core 5 into the tube 8, the interior surface of which has been cleaned, so that the annular rim 9' bears against the end of the core, and the draw-pin 6 extends through the central opening in the end of the tube 8. The interior diameter of the tube 8 is greater than the exterior diameter of the core 5, and therefore the core can be readily inserted without disturbing the solder and flux paste. This solder and flux paste may be placed on the inside of the tube instead of the outside of the core, or, if desired, it may be placed on both surfaces. I now draw out the tube lengthwise between a suitable set of rolls or by drawing the tube and core through a draw-plate and force the inner surface of the tube close to the surface of the core. By thus drawing or rolling the tube lengthwise the force exerted in compressing and extending the plating-tube forces the greater portion of the solder paste forward toward and

out of the open end of the tube, leaving only a thin film of paste or the thickness of the granulated metal solder, which is held between the two metallic surfaces in contact.

- 5 When the so-prepared ingot is subjected to sufficient heat to melt the solder, the solder does not flow in the manner that a thicker film of solder would, for the reason that the quantity of solder is so small and the space
10 between the two metallic surfaces so narrow that all the solder between the surfaces is only sufficient to plate the two surfaces.

- All persons skilled in the art of soldering are aware that a surface covered with solder
15 when heated will permit the mass of solder to run off; but a thin plating of solder remains on the surface which will not run off, but must be wiped away to remove the same, and are also aware that when two metals are sol-
20 dered together with a solder fusible at a lower temperature than the metals the thinner the film of solder between the two surfaces the stronger is the joint. The so-prepared ingot is now subjected to heat sufficient to melt the
25 solder, and is then drawn into wire in the ordinary manner.

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

1. The improved method or process herein 30 described of making compound ingots for plated wire, the same consisting in covering the surface of the core, and the inside of the plating-tube, either or both, with a paste containing solder and flux, inserting the core into 35 the tube, and forcing the plating-tube into close contact with the core by contracting the diameter of the tube before the ingot is subjected to heat to fuse the solder, as described.

2. The improvement in making plated wire, 40 the same consisting in bending a portion of one end of the plating-tube inward, providing the core of base metal with a draw-pin, covering the outside of the core, and the inside of the plating-tube, either or both, with a 45 paste made of particles of solder and flux and a suitable liquid, drawing the plating-tube onto the core by contracting the diameter of the tube and extending the same lengthwise, heating the so-prepared ingot to melt the sol- 50 der, and drawing the same into wire, as described.

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