

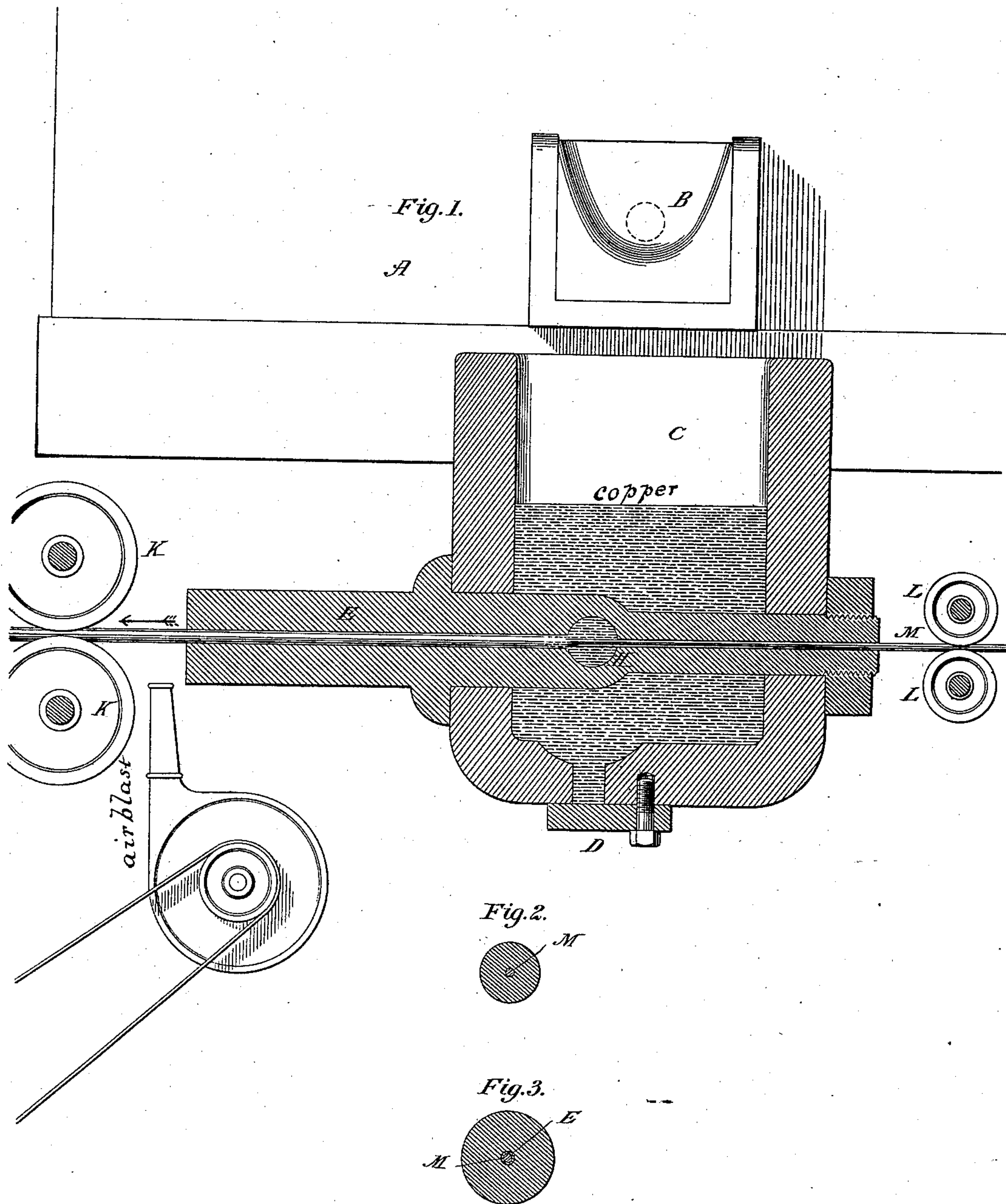
(No Model.)

M. G. FARMER.

# APPARATUS FOR COATING WIRE WITH METAL.

No. 310,994.

Patented Jan. 20, 1885.



*Attest:*

Almond & Barnes  
W. Frisby

*Inventor:*

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By Parker W. Page  
atly.



# UNITED STATES PATENT OFFICE.

MOSES G. FARMER, OF NEWPORT, RHODE ISLAND.

## APPARATUS FOR COATING WIRE WITH METAL.

SPECIFICATION forming part of Letters Patent No. 310,994, dated January 20, 1885.

Application filed July 29, 1884. (No model)

*To all whom it may concern:*

Be it known that I, MOSES G. FARMER, a resident of Newport, in the county of Newport and State of Rhode Island, have invented certain new and useful Improvements in Apparatus for Coating Wire with Metal, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

In an application filed by me February 20, 1884, No. 121,372, I have described a process of manufacturing electrical conductors by drawing a steel or iron wire through a die from a receptacle containing melted copper. The wire before entering the orifice of the die passes through a guide that maintains it in a central position in the orifice, and thus causes an even coating or sheathing of the melted metal to be formed around it.

My present invention is an improvement on the means described for coating the wire; and it consists, in general terms, in the combination, with a receptacle for containing melted metal, of a tubular wire-guide one portion of which has a larger bore than the other. Each bore communicates with the interior of the receptacle, so that a wire drawn through the guide passes through the melted metal therein. The special device which I use consists of a tube extending through the sides of the receptacle, and provided with one or more openings or passages through the bore of the tube. From one end of the tube to the transverse passage the bore, in whole or in part, is just large enough to permit the wire that is to be coated to be drawn freely through. From the passage to the other end the bore is of somewhat greater diameter, so that when the receptacle is filled with melted copper and a wire drawn through the tube the metal will be prevented from running out through the smaller part of the bore of the tube; but a sufficient quantity will be taken up by the wire in passing through the melted metal and carried out through the larger part of the bore to form a strong coat, that imparts a high degree of conductivity to the conductor. The tube constructed as set forth constitutes the best and most practicable means of carrying out the invention of which I am aware. The difference in the diameters of the bore and passage through the tube, virtually divides it into two tubes,

and they may therefore be distinct, though such construction is undesirable. The tube may extend through the receptacle horizontally or at an angle, as may be preferred, it being only necessary to the operation of the device that the passage for the admission of metal to the wire be below the level of the melted metal. The diameter of the bore of the tube may obviously not be uniform on each side of the passage, though the least diameter of the smaller part should of course be ample to permit the free passage of the wire, and the smallest part of the larger bore enough to allow the wire, with its coating of metal, to pass.

I will now describe my invention in detail by reference to the accompanying drawings.

Figure 1 is a view in elevation and part section of the entire apparatus. Fig. 2 is a transverse section of the tube at its smaller portion, and Fig. 3 a similar section through the part of larger bore.

A is a crucible or furnace in which the copper or other metal to be used on the wire is melted. Below the vent or spout B is a ladle or receptacle, C, of refractory material, in the bottom of which is a tap, D, of any convenient character, for drawing off the melted contents of the receptacle C when its use is to be discontinued. A cylinder or tube, of refractory metal, is passed through the sides of the receptacle C and secured firmly in place. A wide passage, H, is drilled through the tube, on one side of which the part E of the tube has a larger bore than the part F on the other side. At the opposite ends of the tube are placed grooved rollers K L, and at the end of larger bore is also an air-blast or other suitable apparatus for cooling the wire as it issues from the tube.

In using the apparatus a wire, M, preferably a steel or iron wire which has received a thin preliminary coating of copper by electro-deposition, is passed through the two parts of the tube and run between the grooved rollers K L. The receptacle C is then filled from the spout B with melted copper above the level of the passage H, and the wire drawn through the tube from the part of smaller to that of larger bore. In passing through the opening H the wire takes up and carries into the part E a certain quantity of the copper. This is cooled in passing through the tube, and hard-



ened by the air-blast on issuing from the tube. If necessary, the metal in the receptacle C may be heated by flames directed against the receptacle or otherwise.

5 The apparatus, constructed as now described, is more durable and less liable to get out of order than any other of which I am aware.

10 Having now described my invention, what I claim is—

1. The combination, with a receptacle for containing melted metal, of a tubular wire-guide extending through the same, one portion having a bore of greater diameter than  
15 the other, and both bores communicating with the interior of the receptacle in substantially the manner herein set forth.

2. The combination, with a receptacle for

containing melted metal, of a tube extending through the same and containing a transverse  
20 passage or opening, the bore on one side of said passage being larger than on the other, as set forth.

3. The combination, with a receptacle for containing melted copper, of a tube extending  
25 horizontally through the same and containing a transverse passage, and wire-guide rollers located at the ends of said tube, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my  
30 hand this 25th day of July, 1884.

MOSES G. FARMER.

Witnesses:

JOHN C. LANG,

WILLIAM B. HEATHERTON.