March 26, 1929. V. H. FARR 1,706,524

METAL FABRIC AND METHOD OF MAKING THE SAME

Filed Dec. 13, 1926

Fig. 1.

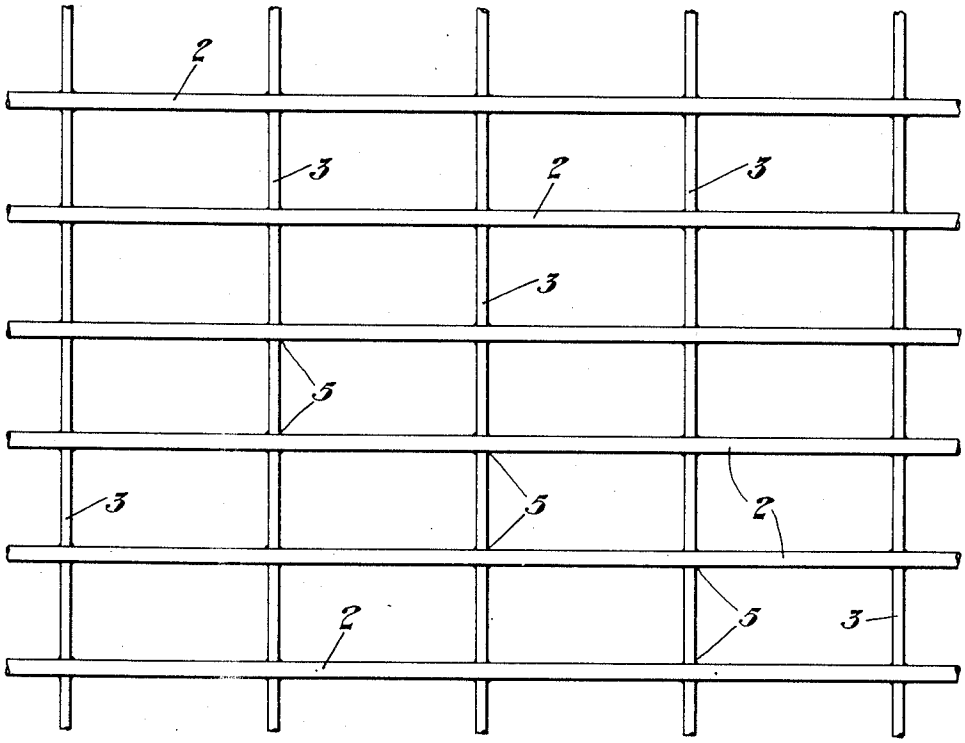
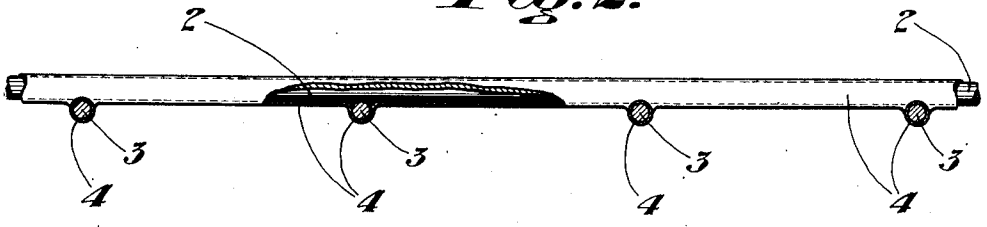



Fig. 2.




Witnesses:
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# UNITED STATES PATENT OFFICE.

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## METAL FABRIC AND METHOD OF MAKING THE SAME.

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This invention relates to concrete reinforcing and more particularly to metal fabric used as a concrete reinforcing, and has for one of its objects the provision of an improved form of rust-proof fabric for use as a concrete reinforcement, which will be superior to the plain or galvanized fabrics now in use.

Another object is to provide a novel method of manufacturing the fabric of this application which will increase the production of the fabric, and provide a stronger fabric than that produced by the methods heretofore used.

Heretofore when plain or uncoated stock was made into fabric, the fabric would rust almost immediately after being made, and this rust coating on the fabric would increase until a rust scale condition prevailed, so that when the fabric was embedded in concrete a poor bond resulted.

Fabric for use as a concrete reinforcing material has been galvanized to protect it from rust, this galvanize coating, however, in some instances scales or peels off and, therefore, forms an imperfect bond when embedded in concrete.

The present invention provides a copper coating on the fabric which forms an integral part of the metal from which the fabric is made and protects the fabric from rusting, while at the same time providing a smooth non-scaling surface so that a perfect bond may be had between the reinforcing and concrete.

The copper coating of this invention is applied to the stock from which the fabric is to be made prior to the fabricating of the fabric. Therefore, when the longitudinal and transverse elements of the fabric are assembled for welding, their electrical conductivity is increased and clean surfaces are presented to each other and a superior weld is had over that possible from plain or uncoated elements.

In carrying out the method of this invention, the rods or wires forming the stock from which the fabric is to be made is first cleaned of all scale and foreign matter by pickling or any of the other usual methods. If the stock is pickled it is then rinsed in water to remove all the acid, prior to the coating operation. After rinsing, the stock is then immersed in an acid solution of copper sulfate of any desired strength and allowed to remain in this solution until the desired thickness of copper coating is deposited on the stock. The time necessary for the copper coating to deposit on the stock varies with the strength of the copper sulfate solution, therefore, it is preferred to maintain a saturated acid solution of copper sulfate so that the stock need be immersed for the shortest possible time, and all stock can be immersed for a uniform time and produce a uniform coating of copper on the stock. The copper sulfate is preferably dissolved in a sulfuric acid solution having a strength of two and one-half to three per cent of acid, and when the steel stock is immersed by dipping or any other method, an electrolytic action is set up which deposits a coating of metallic copper on the steel stock.

After the stock has been immersed in the copper sulfate and the copper coating has been formed thereon, the stock is removed and immersed in hot water to rinse the stock and set the coating. The water in which the coated stock is immersed is preferably heated to a boiling temperature. The stock is removed from the boiling water and allowed to dry and is then ready to be made into the finished fabric.

After the coated stock is dried, suitable sizes are selected and assembled to form the longitudinal and transverse elements of the fabric. After the longitudinal and transverse elements are assembled an electric current is passed through the elements and they are welded together at their points of intersection in the usual manner.

The welding of the longitudinal and transverse elements of the fabric is greatly facilitated due to the fact that the copper coating increases the electrical conductivity of the elements and further presents an absolutely clean contacting surface for welding, thereby resulting in the formation of stronger welds than when uncoated elements are used.

In the drawings—

Figure 1 is a plan view of a piece of concrete reinforcing fabric made in accordance with this invention.

Figure 2 is a sectional view through the fabric of Figure 1, with the copper coating shown broken away from the longitudinal member thereof.

Referring more particularly to the drawings, the numeral 2 designates the longitu-

dinal elements of the fabric and the numeral 3 designates the transverse elements. The elements 2 and 3 are provided with a copper coating 4 over their entire surface which increases their electrical conductivity so as to facilitate welding of the elements together, and which also protects their surface from rusting so that a clean surface is presented for bonding with the concrete in which the fabric is adapted to be embedded.

The elements 2 and 3 are joined together by electric welding at their points of intersection as at 5 by any of the well known and approved methods of welding commonly used for this purpose.

While I have described certain specific embodiments of my invention, I do not wish to be limited thereto since various modifications may be practiced without departing from the scope of my invention as defined in the appended claims.

I claim—

1. The method of manufacturing copper coated metal fabric for concrete reinforcing, which includes cleaning the stock to be used as the longitudinal and transverse elements of the fabric to free said stock of scale and the like, then immersing said stock in a solution of copper sulfate to form a copper coating on said stock, and then arranging said stock to form the longitudinal and transverse elements of the fabric and welding said elements to each other.

2. The method of manufacturing copper coated metal fabric for concrete reinforcing, which includes cleaning the stock to be used as the longitudinal and transverse elements of the fabric to free said stock of scale and the like, then immersing said stock in an acid solution of copper sulfate to form a copper coating on said stock, then immersing said stock in a hot water bath to rinse said stock and set the copper coating, then arranging said stock to form the longitudinal and transverse elements of the fabric, and then electric welding said elements to each other.

3. The method of manufacturing copper coated metal fabric for concrete reinforcing, which consists in pickling the stock to be used as the longitudinal and transverse elements of the fabric, then rinsing said stock, then immersing said stock in an acid solution of copper sulfate to form a copper coating on said stock, then immersing said stock in a hot water bath to rinse said stock and set the copper coating thereon, then arranging said stock to form the longitudinal and transverse elements of the fabric, and then finally electrically welding said copper coated elements to each other.

4. The method of manufacturing copper coated metal fabric for concrete reinforcing, which consists in picking the stock to be used as the longitudinal and transverse elements of the fabric, then rinsing said stock, then immersing said stock in a saturated acid solution of copper sulfate to form a copper coating on said stock, then immersing said stock in boiling water to rinse said stock and set the coating thereon, then arranging said stock to form the longitudinal and transverse elements of the fabric, and then finally electrically welding said copper coated elements to each other.

5. As an article of manufacture, a welded metal fabric for concrete reinforcing composed of longitudinal and transverse elements welded to each other, said elements having a copper coating deposited thereon prior to being welded.

6. As an article of manufacture, a concrete reinforcing fabric composed of a plurality of relatively heavy, longitudinal wires spaced transversely, a plurality of relatively light, transverse wires arranged along the one side of said longitudinal wires and spaced longitudinally, all of said wires having a copper coating deposited over their entire surface, and said wires being welded together at their points of intersection so as to form a fabric having a substantially continuous copper coating over its surface so as to present a rust resisting surface.

In witness whereof, I have hereunto signed my name.

VIRGIL H. FARR.