(No Model.)

R. D. SANDERS.

MANUFACTURE OF WIRE STRIPS OR THE LIKE BY ELECTRODEPOSITION.

No. 525,800. Patented Sept. 11, 1894.

Fig. 1.

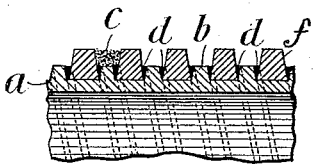


Fig. 2.

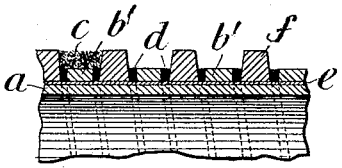
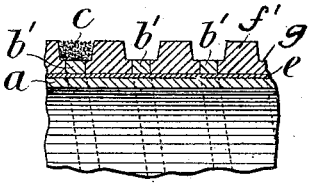


Fig. 3.



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UNITED STATES PATENT OFFICE.

RICHARD DAVID SANDERS, OF EASTBOURNE, ENGLAND.

MANUFACTURE OF WIRE STRIPS OR THE LIKE BY ELECTRODEPOSITION.

SPECIFICATION forming part of Letters Patent No. 525,800, dated September 11, 1894.

Application filed August 3, 1892. Serial No. 442,076. (No specimens.) Patented in England May 8, 1891, No. 7,960; in Belgium February 17, 1892, No. 98,407, and in France February 20, 1892, No. 219,566.

To all whom it may concern:

Be it known that I, RICHARD DAVID SANDERS, a subject of the Queen of Great Britain, residing at Eastbourne, England, have invented new and useful Improvements in the Manufacture of Wire Strips or the Like by Electrodeposition, (for which I have obtained Letters Patent in Great Britain, dated May 8, 1891, No. 7,960; in Belgium, dated February 17, 1892, No. 98,407, and in France, dated February 20, 1892, No. 219,566,) of which the following is a specification.

My invention relates to improvements in the manufacture of wire strips and the like by electro-deposition upon a grooved, spiral or helical surface, or mandrel, as hereinafter more particularly described. In depositing metal upon such surfaces as hitherto constructed a difficulty has been experienced in confining the deposit to the metallic or depositing surfaces or grooves and as a consequence the metal is deposited in irregular shapes unsuitable for commercial purposes.

The object of my invention is to provide means whereby on a metallic surface of the kind hereinbefore described a wire or strip of practically uniform thickness and form may be obtained.

In carrying out my invention I place the insulating material so that the metallic surface on which the deposit is made is not the full width of the bottom of the groove or depositing surface, whereby as the deposit grows the side clearance spaces will allow the strips to broaden as the thickening proceeds.

To enable my invention to be fully understood I will proceed to describe how the same can be carried into practice by reference to the accompanying drawings, in which—

Figures 1, 2, and 3 are sections of parts of mandrels constructed according to my invention and adapted for the manufacture of square or flat strips or wires.

In the arrangement shown in Fig. 1, *a* represents a metal cylinder upon the surface of which I cut or form a thread *b*, and in the groove formed between the threads I introduce a strip *f* of insulating material leaving clearance spaces *d*, *d* between the sides of the metal thread and the sides of the insulating strip which spaces *d*, *d* are filled up with bitumen, wax or other suitable material and turned down to a smooth surface as shown.

The object of these clearance spaces *d*, *d* is to prevent the metal creeping up the sides of the insulator before the required thickness has been deposited.

c, on all the figures, indicates the electro deposit.

It will be understood that deposition first takes place upon the metal surface *b* and as it grows in thickness it also grows in width. If therefore the clearance on either side of the depositing surface is sufficient, the deposited metal, by the time it has increased in width to fill the groove laterally, will have also attained a sufficient thickness vertically to form an approximately square section which can then be removed before rough edges are formed by the metal creeping up the sides of the insulator as before explained.

A further object of my clearance spaces is to afford facility for the insertion of a suitable stopping to prevent the cupreous solution getting to the metallic surface of the cylinder under the insulator.

In Figs. 2 and 3 the arrangement is practically the same as in Fig. 1 except that in place of cutting a spiral thread or groove in a metal cylinder I form the same by winding metal and gutta-percha or other suitable strips *b'* round the mandrel *a* which may be of any suitable non-conducting material, such strips being of sections substantially as shown whereby the depositing surface and clearance spaces are obtained for the purposes as already explained.

In Fig. 3, the bitumen filling is not shown, but the insulating strip *f'* has an offset *g*, at each of its sides, occupying the same space as does the bitumen or other filling shown at *d*, *d*, in Fig. 2.

When depositing surfaces are obtained by using long strips I find the deposit is irregular in thickness. I therefore, before applying the strips, cover the mandrel with some suitable metallic foil *e* by which the electric current is evenly distributed and a uniform deposit obtained over the entire exposed depositing surface. The cathodes thus formed are immersed in a cupreous solution and subjected to an electric current in the ordinary

way and the deposit when large enough can be easily removed from the cathode and drawn into wire in the ordinary manner.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

A mandrel for the manufacture by electro-deposition of a continuous strip of metal, having a spiral groove the base of which consists of an intermediate conduction portion and of insulating portions at each side of the same, the side walls of the groove being also of insulating material.

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