

No. 625,205.

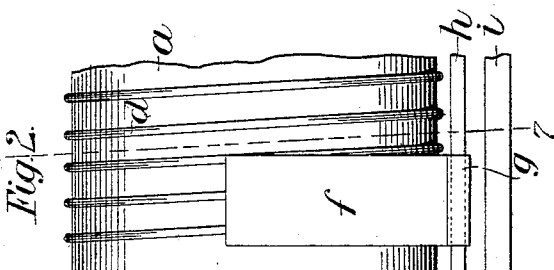
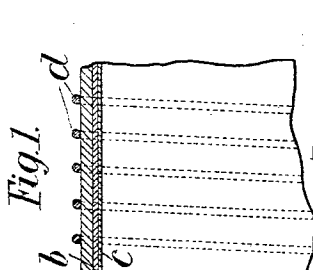
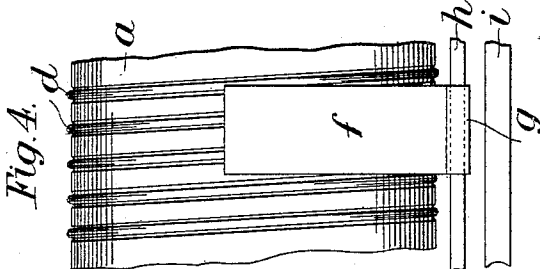
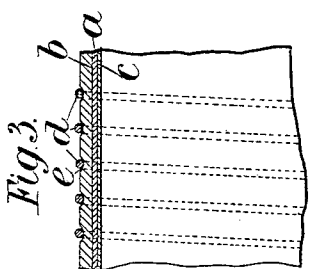
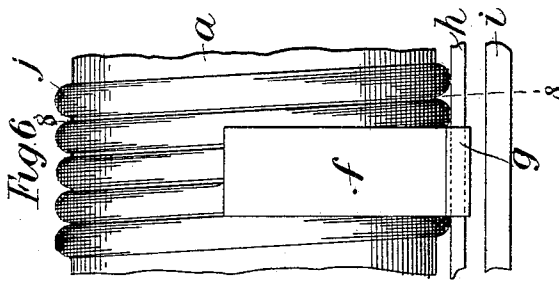
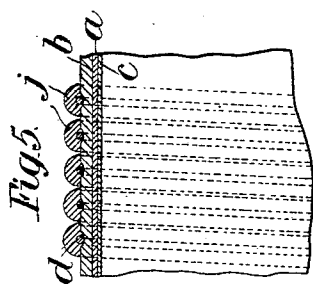
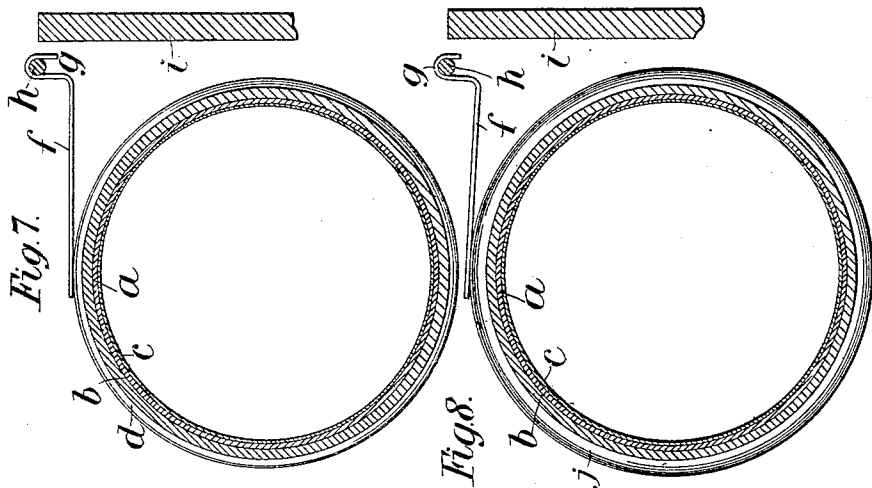
Patented May 16, 1899.

R. D. SANDERS.

APPARATUS FOR MANUFACTURING WIRE.

(Application filed Sept. 6, 1898.)

(No Model.)



Witnesses.

J. D. Kingsbury
[Signature]

Inventor.

Richard D. Sanders
[Signature] Revoked atty.

UNITED STATES PATENT OFFICE.

RICHARD DAVID SANDERS, OF EASTBOURNE, ENGLAND.

APPARATUS FOR MANUFACTURING WIRE.

SPECIFICATION forming part of Letters Patent No. 625,205, dated May 16, 1899.

Application filed September 6, 1898. Serial No. 690,305. (No model.)

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 Apparatus for the Manufacture of Wire, (for which I have applied for a patent in Great Britain, No. 17,442, dated August 12, 1898,) of which the following is a specification.

10 This invention relates to the manufacture of wire by electrodeposition.

According to my former patents, Nos. 525,800 and 541,986 and British Patent No. 12,382 of 1892, I form the spiral metallic surface upon which I deposit the metal to form the wire by cutting a screw-thread in the surface of a cylinder and exposing to the electrolytic action a portion of such thread, according to the nature of the wire I wish to produce.

20 According to my Patent No. 541,986 I obtain the metallic surface by winding a wire at the bottom of a screw-thread cut or formed in a cylinder of glass or other non-conducting material.

25 Now according to the present invention I removably wind a round, oval, or semicircular shaped wire upon a mandrel or cylinder constructed substantially as described in the specification of my British Patent No. 12,382 of 1892, in lieu of the metallic surfaces therein described, so that both the foundation-wire and the deposited metal can be removed together. This arrangement has the advantage of dispensing with all the points and corners of the depositing-surface, which in practice I have found to cause irregular forms of deposits and interfere with the removal of the deposited wire from the cylinders.

35 My present arrangement has the further advantage of enabling a continuous contact-maker to make contact with every turn of wire, notwithstanding the wire being a spiral, and without the contact-maker having to jump from turn to turn of the spiral as the cylinder revolves, which is necessary when the foundation-wire is placed at the bottom of the deep grooves shown in my former patents.

40 To enable my invention to be fully understood, I will describe the same by reference to the accompanying drawings, in which—

50 Figure 1 is a section, and Fig. 2 is a plan, of a part of a cylinder for carrying out my

invention, showing a round foundation-wire removably wound upon the surface of the cylinder. Figs. 3 and 4 are similar views to Figs. 1 and 2, but showing the foundation-wire wound in a shallow spiral groove formed on the surface of the cylinder. Figs. 5 and 6 are a section and a plan, respectively, of a part of a cylinder similar to that illustrated in Figs. 3 and 4, but showing the metal deposited on the foundation-wire. Fig. 7 is a cross-section on the line 7 7, Fig. 2; and Fig. 8 a cross-section on the line 8 8, Fig. 6.

Similar letters in all the figures represent similar or corresponding parts.

65 *a* represents a metal cylinder covered on its outer and inner surfaces *b* and *c* with vulcanite or other suitable non-conducting material, or instead of using a combined cylinder, as described, the cylinder may be made of glass, porcelain, or like material, as described in my former patents.

70 *d* is the foundation-wire, which, as shown in Figs. 1 and 2, may be coiled on the surface of the cylinder or, as shown in Figs. 3 and 4, into a spiral groove *e*, formed in the surface of the cylinder, the upper surface of the foundation-wire in either case projecting above the surface of the cylinder.

80 *ff* represent the contact-makers, which are shown in Figs. 2, 4, and 7 as resting upon the foundation-wire *d* and in Figs. 6 and 8 upon the deposited wire, each contact-maker being of such a width as to rest upon several coils of the foundation-wire simultaneously. These contact-makers at *g* rest upon the conducting-wire *h*, disposed parallel to the axis of the cylinder, and can move or be attached to the said wire. *i* represents a portion of the tank in which the cylinder works. By this arrangement it will be seen that the contact-makers *f* make constant contact with every turn of the wire, notwithstanding the same being spiral, the contact-maker not having as heretofore to jump from turn to turn of the spiral as the cylinder revolves. Any number of contact-makers may be placed on the foundation-wire, according to the number of turns on the cylinder. When the current flows from the anode to the foundation-wire *d* on the cylinder, the copper deposits around each turn of the wire *d*, as shown at *j* in Figs. 5, 6, and 8, the section of the deposit being, as shown,

approximately that of a half-circle, whereby the deposit increases very rapidly on the rapidly-increasing area exposed to the electrolytic action, and the maximum effective area upon which the deposit is made in relation to the area of the cylinder is therefore obtained and becomes greater than the area of the surface of the cylinder itself. It will be seen by reference to Figs. 5 and 6 that the deposit has reached the largest section the cylinder is capable of holding, and the deposited wire *j* is ready to be removed with the foundation-wire *d* from the cylinder. The foundation-wire can either be left in the deposited wire or may be removed therefrom to be rewound upon the cylinder.

Although in the drawings the wire *d* is represented as being of round section, it is to be understood that it may be of oval or semi-circular section.

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—

1. In an electrodepositing apparatus, the

combination with the cylinder having a non-conducting surface, of a removable foundation-wire wound tightly thereon in spiral form, and a series of contact-makers having their ends engaging said foundation-wire, each contact-maker being of sufficient width to engage several coils of said wire simultaneously, substantially as described.

2. In an electrodepositing apparatus, the combination with the cylinder having a non-conducting surface, of a removable foundation-wire wound tightly thereon in the form of a spiral, a conductor disposed parallel to the axis of said cylinder and a series of contact-makers engaging said conductor at one end and having their free ends engaging said foundation-wire, said contact-makers each being of such a width as to engage several coils of the foundation-wire, substantially as described.

RICHARD DAVID SANDERS.

Witnesses:

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GEO. S. HARFIELD.