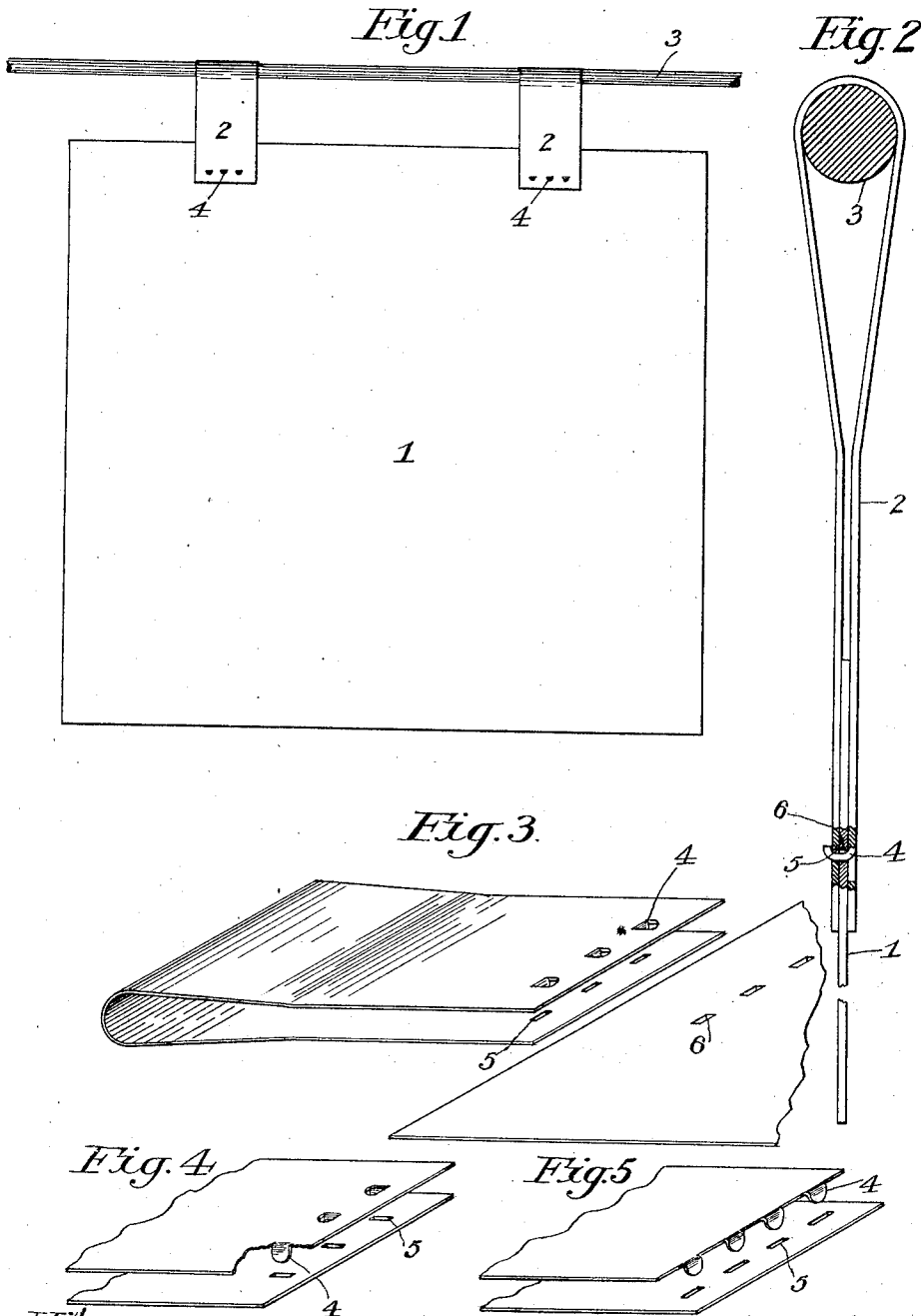


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SUSPENSION LOOP FOR INITIAL CATHODE SHEETS.  
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1,002,462.

Patented Sept. 5, 1911.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## SUSPENSION-LOOP FOR INITIAL CATHODE-SHEETS.

1,002,462.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed July 29, 1910. Serial No. 574,565.

*To all whom it may concern:*

Be it known that I, EDWARD L. SIBLEY, a citizen of the United States, residing at Bennington, in the county of Bennington and State of Vermont, have invented a certain new and useful Improvement in Suspension-Loops for Initial Cathode-Sheets, of which the following is a full, clear, and exact description.

10 A main object of this invention is to provide an initial cathode sheet for use in the electrolytic refining of copper, of such construction as to insure good conductivity and a practically uniform suspension of the  
15 cathode.

As is well understood, in this process the anode is a mass of more or less impure copper, and the cathode is initially a sheet of pure copper suspended in the same electrolyte with the anode and exposed to a current of electricity, whereby the copper liberated from the anode is deposited in a pure state upon the cathode until the desired weight, usually from about one hundred and fifty to  
20 two hundred pounds more or less, is obtained.

It is necessary that the cathode be provided with suspension loops for hanging it from the conducting rods, of sufficient  
25 strength to hold its ultimate load, and hold it evenly, so that substantially the full strength of current may pass to the plate throughout the process.

I have obtained the best results by using  
30 one or more flat loops of copper for suspending the sheet, and securing the loops to the initial sheet by matched interlocking mediums, such as lugs partly cut integrally from the loops and passed through slots in  
35 the sheet and in the other limb of the loop and clenched on the other side so as to draw the parts into intimate conducting contact as well as union.

Having thus stated the object and nature  
40 of my invention, I will proceed to describe said invention in detail, and then particularly point out and distinctly claim the part, improvement or combination which I claim as my invention.

45 In the accompanying drawing illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a somewhat conventional representation, in elevation, of an initial cathode sheet suspended from a conducting or pole rod in accordance with my invention. Fig. 2 is a

side view, partly in section and on a larger scale. Fig. 3 is a perspective view, illustrating one form of loop and part of an initial sheet. Fig. 4 is a perspective view of the ends of a loop illustrating another form of interlocking means, one corner of one limb being broken away the better to show the lug. Fig. 5 is a perspective view of the ends of a loop showing the interlocking  
50 lugs on the edge of one limb of the loop.

The initial sheet 1 is of suitable relatively pure or refined metal, suitable for the process to be carried out. Without thereby limiting the invention, but confining this  
55 specification to the refining of copper, this initial sheet is of metallic copper. Any number of loops 2 are attached to the sheet so as to properly suspend it from the conducting or pole rod 3. I prefer to use loops  
60 of flat sheet metal, copper, in this instance, of considerable width, so as to insure a large electrical contact with the rod 3, and also so as to suspend the sheet uniformly and evenly from the rod and within the bath.  
65 To form the loops, the pieces of metal are folded transversely, so as to form an eye at one end and substantially parallel limbs. The loops must be secured to the sheet in a firm manner so as to sustain the weight of  
70 the accretions on the sheet, and also so as to afford good electrical contact or conductivity, and to these ends, I prefer to make the connecting devices integral with the loops and sheet. Several forms of such connect-  
75 ing devices are shown.

Figs. 1, 2 and 3, show transversely arranged lugs 4, severed on three sides from one limb of the loop and bent inwardly at about right angles, and in the opposite  
80 limb transverse slots 5 are arranged. In the sheet are arranged similar transverse slots 6, and when the sheet is placed between the limbs of the loop so as to aline its slots with the lugs and slots of the loop,  
85 the lugs are extended through the slots in the sheet and in the opposite limb of the loop and the parts tightened up into close contact, and the lugs then clenched on the loop, as indicated in Fig. 2, thus securing  
90 an intimate flat contact of considerable superficial area between the loop and sheet, and also firmly connecting these parts so as to sustain the weight of the growing  
95 cathode.

100 Instead of arranging the lugs and slots in the loop transversely, they may be ar-

ranged longitudinally, as in Fig. 4, and the slots in the sheet will be similarly cut; or the lugs may be made on the edge of the loop transversely, as shown in Fig. 5. Other arrangements and forms of lugs and slots may be employed, the essential thing being that they shall be capable of efficiently uniting the loops and sheets for good electrical contact and secure support.

10 What I claim is:—

1. An initial cathode sheet, having openings in it, and a suspension loop therefor formed of a wide flat piece of electrically conductive metal bent upon itself transversely to form a laterally extended eye adapted for extensive engagement with a conducting rod so as to insure large contact surface and a straight and even suspension effect, and having opposite limbs, and integral lugs on one limb and complementary openings in the opposite limb, said limbs embracing the sheet with the lugs passed through the openings in the sheet and loop and clenched on the loop to effect

an intimate electrical contact of loop and sheet and a mechanical union of a strength sufficient to sustain the sheet when fully loaded. 25

2. An initial cathode sheet, having openings in it, and suspension loops of relatively wide and flat metal, whereby an extended contact surface with a conducting rod is insured and the sheet suspended uniformly and evenly from said rod, said loop having integral lugs on one limb adapted to be passed through complementary openings in the sheet and complementary slots in its other limb and clenched thereon so as to draw the limbs of the loop into intimate contact with the sheet and thereby secure good electrical contact between the limbs of the loop and the sheet. 30 35 40

In testimony whereof I have hereunto set my hand this 26 day of July A. D. 1910.

EDWARD L. SIBLEY.

Witnesses:

CHARLES H. DEWEY,  
RICHARD F. RANSOM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."