

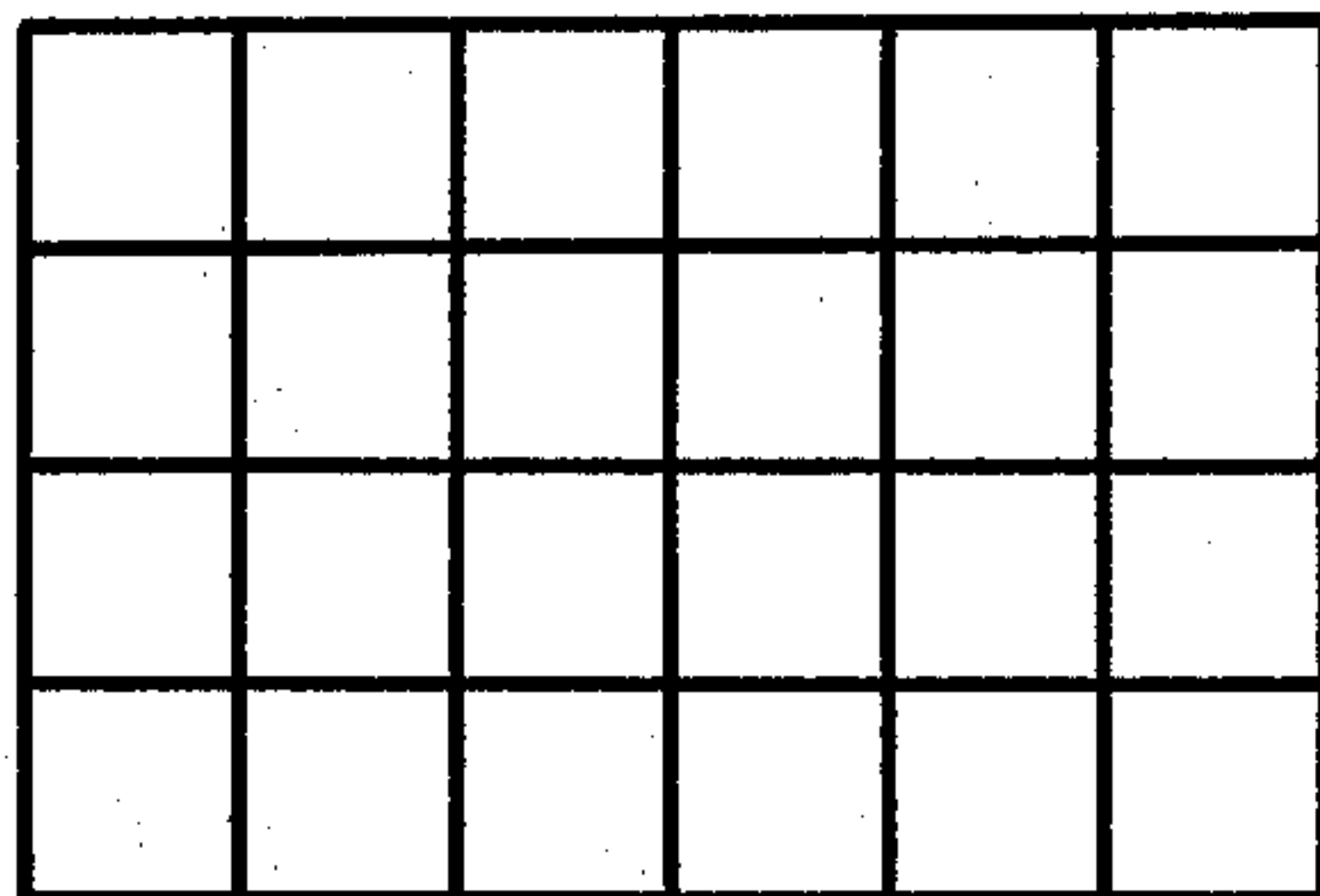
(No Model.)

E. MOREAU.
INCANDESCENT.

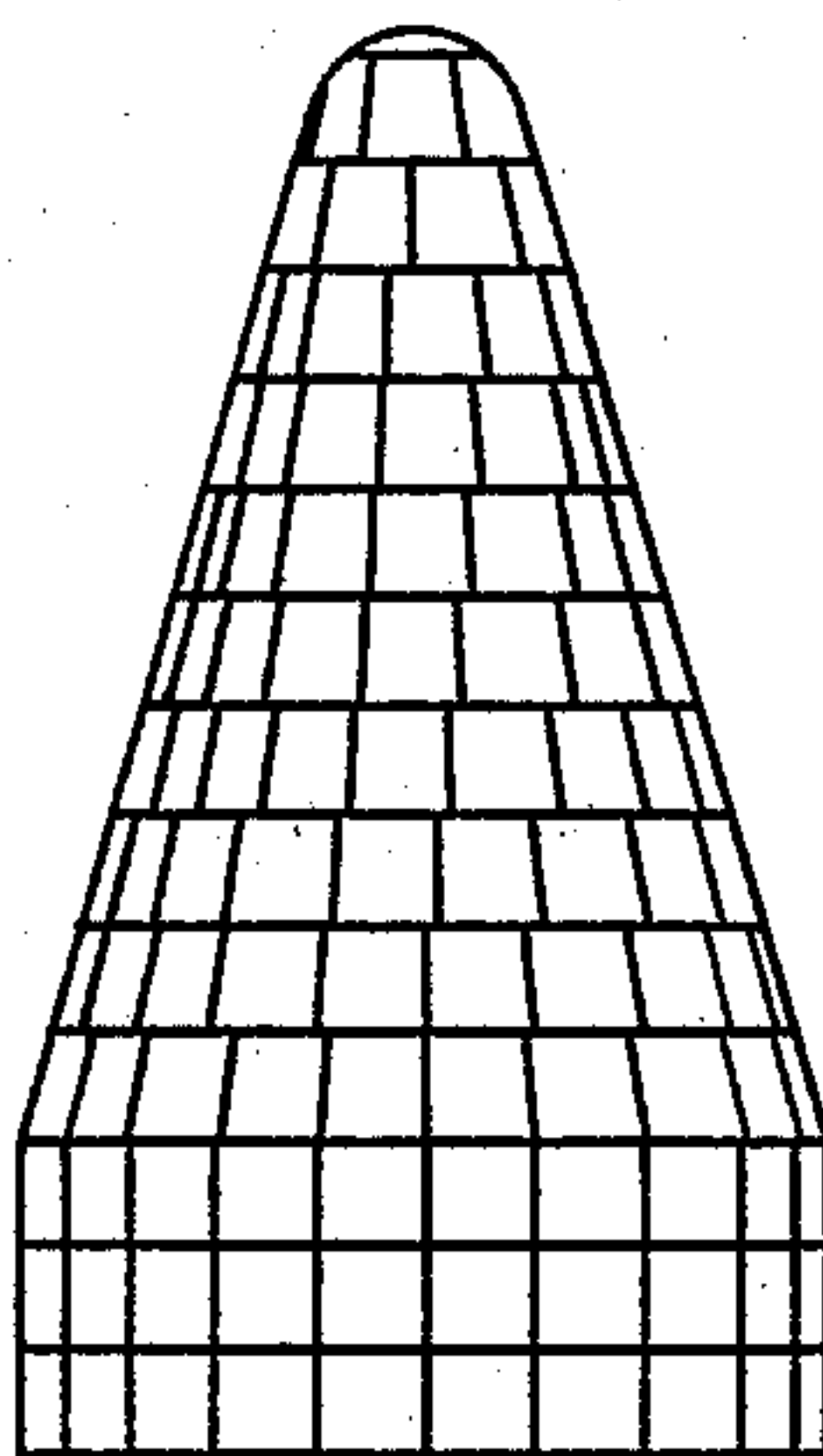
No. 392,163.

Patented Oct. 30, 1888.

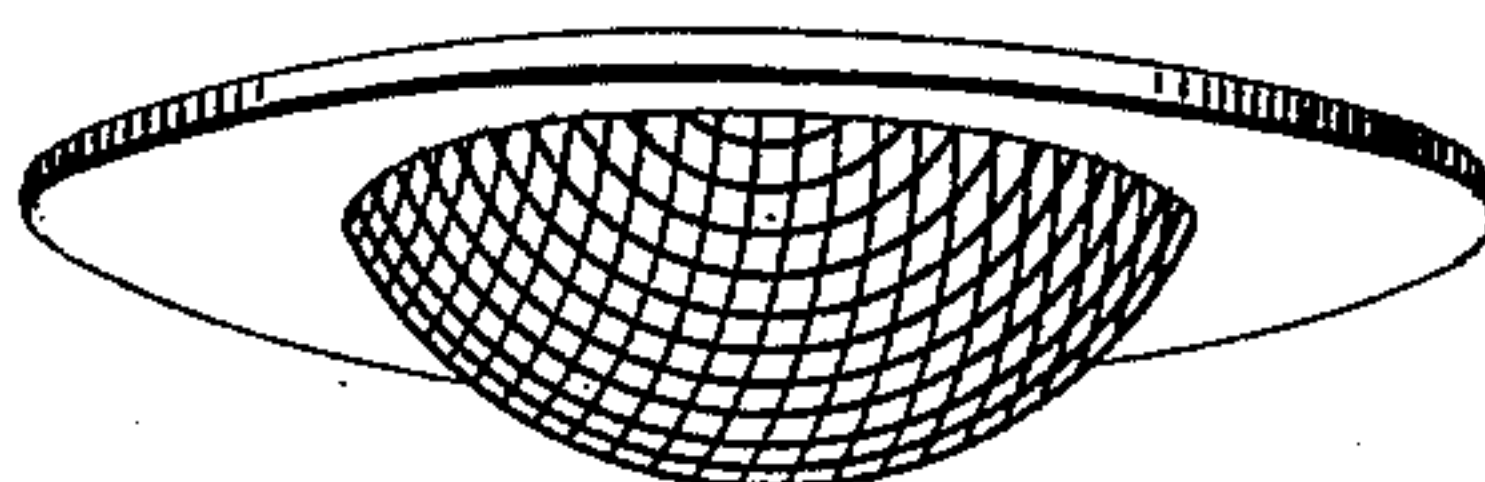
—Fig. 1.



—Fig. 2.



—Fig. 3.



Witnesses:

W. W. Mortimer,
R. M. Elliott,

Inventor :

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UNITED STATES PATENT OFFICE.

EUGÈNE MOREAU, OF PHILADELPHIA, PENNSYLVANIA.

INCANDESCENT.

SPECIFICATION forming part of Letters Patent No. 392,163, dated October 30, 1888.

Application filed February 20, 1888. Serial No 264,568. (No model.)

To all whom it may concern:

Be it known that I, EUGÈNE MOREAU, a citizen of the Republic of France, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Reticulated Structures of Electro-Deposited Metal; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electro-deposition.

The object is to produce a reticulated metallic structure in the nature of wire net, but without the defects of want of fixedness or stability existing in wire net.

To this end the invention consists in a reticulated structure of electro-deposited metal in the nature of an integral web.

I have illustrated some forms of my invention in the accompanying drawings, in which—

Figure 1 is a view of a flat reticulated plate of electro-deposited metal as a connected integral web. Fig. 2 is a view of a cone of the same. Fig. 3 is a view of a segment of a sphere of the same.

My invention may be carried into effect in many ways. The following will serve as illustrations: I will illustrate my process as applied to the manufacture of a copper reticulated structure. I take a matrix made of glass, paraffine, or other non-conducting material, and upon this matrix, which may be a flat surface or a cone, or any other shape which it is desired that the reticulated metallic structure shall assume when finished, I mark out the lines of the fabric with any liquid of the nature of sizing. Having completed the marking of the lines, I spread or sift over them any powder made of electro-conducting material, preferably metallic powders, such as are used for bronzing, gilding, &c. The sizing, being allowed to dry, retains enough of the powder to be metallized and become a good electrical conductor. The matrix thus prepared is then cleaned, so as to retain the powder only where the sizing has permitted it, and is placed into a galvano-plastic bath connected with the battery and allowed to remain immersed and under the influence of the current until the required thickness of metal has been deposited. The matrix is then withdrawn from the

bath, washed, and afterward placed in another bath, where a suitable solvent is allowed to dissolve the sizing, and thus permit the easy separation of the deposited fabric from the matrix.

I will add that sometimes heat without the use of the bath is sufficient to cause the separation of the fabric from its matrix. When the matrix is made of wax or paraffine, it is allowed to melt away and cannot be used again.

Another process consists in using a metallic matrix, plate, or shell centrally covered with a suitable non-conducting varnish. The lines of the reticulated web are marked through the varnish in such a manner as to expose the metal, thus leaving the drawing of the web in metallic lines. The matrix thus prepared is treated as explained above for electro-deposition in the bath.

The web can be separated from the matrix by different methods. One method is to make the matrix of easily-fusible metal and simply melt it away. By another method used in the manufacture of flat or nearly flat surfaces the lines exposed on the matrix are lightly oiled before exposure to electro-deposition. This precaution is sufficient to prevent contact between the deposit and the matrix and make the former easily separated.

In the case of precious metals, like platinum or gold, the matrix is preferably made of thin copper or brass, either by stamping, spinning, or electroplating upon a mold. When the platinum or gold web is to be detached, the matrix is simply allowed to dissolve in an acid bath, leaving the deposited fabric intact.

I will further describe another method of making a metallic matrix. Instead of covering it at first with varnish, I clean it carefully and print upon it in insulating varnish the spaces to be opened in the fabric, thus leaving the design of the web intact on the clean metal. The remainder of the operation is as described above.

In the case of platinum webs I submit the product to an annealing process for the purpose of giving the fabric greater cohesion than it had when leaving the bath. In order to accomplish this, I place the electro-deposited web in a mold of suitable shape, made, preferably, of lime, and bring the whole to a white heat. The mold is then allowed to cool, and,

being opened, the annealed fabric is removed, when it is found that it has much greater cohesion than before this treatment.

My method when applied to platinum or
5 other highly-refractory metal is particularly well adapted to the making of incandescent gas-burners.

In the formation of the web by perforating or puncturing a previously-prepared piece of
10 sheet metal it is obvious that no matter how carefully the operation is performed the different parts of the metal may possibly differ slightly in thickness, density, &c., owing to pressure being exerted only on those portions
15 which are cut, and that the product may sometimes thus far fall short of the perfect uniformity of constitution which is important to

the perfect action of the mantle. By forming the web by electro-deposition any such disadvantage is obviated. 20

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

An incandescent of electro-deposited metal, having openings throughout to present a practically-uniform integral web, substantially as
25 described.

In testimony whereof I affix my signature in presence of two witnesses.

EUGÈNE MOREAU.

Witnesses:

R. G. DYRENFORTH,
W. W. MORTIMER.