

No. 838,346.

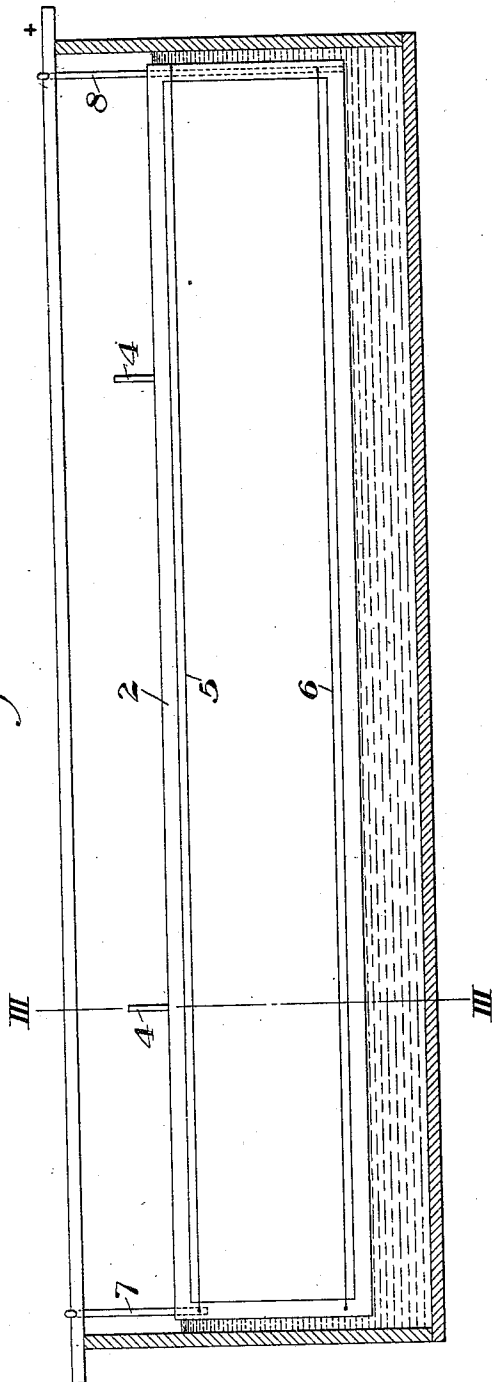
PATENTED DEC. 11, 1906.

E. L. LIVINGSTON & W. McNULTY.
METHOD OF ELECTROPLATING.

APPLICATION FILED JAN. 25, 1906.

2 SHEETS—SHEET 1.

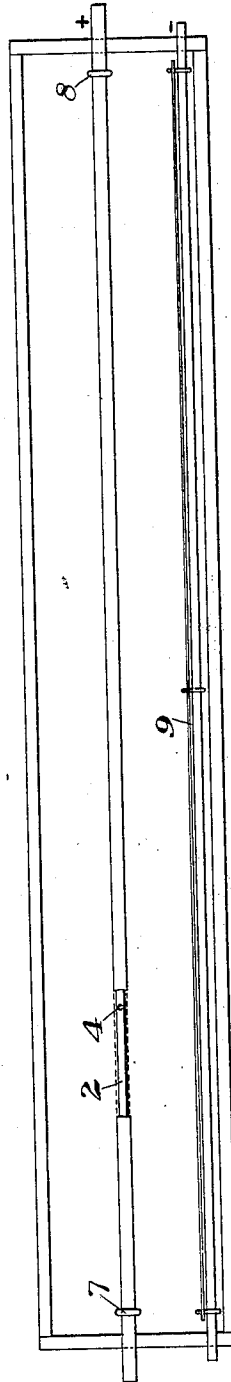
Fig. 1.



WITNESSES

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Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 4.

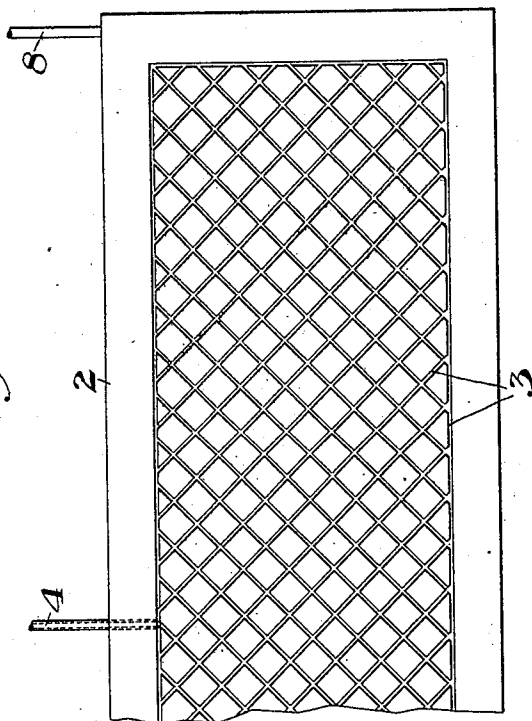
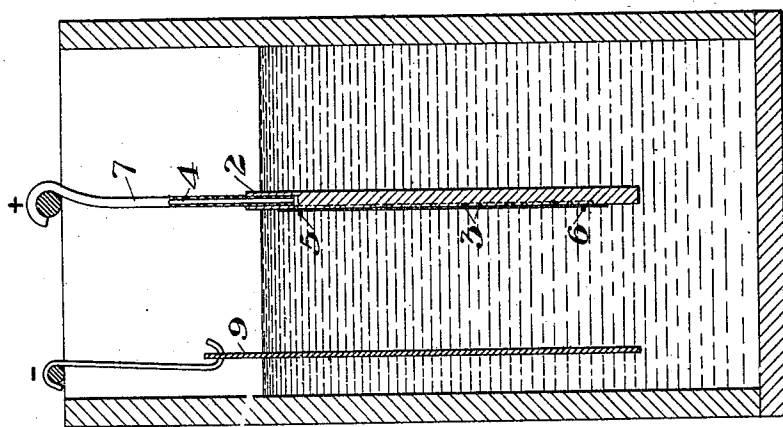


Fig. 3.



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UNITED STATES PATENT OFFICE.

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METHOD OF ELECTROPLATING.

No. 838,346.

Specification of Letters Patent.

Patented Dec. 11, 1906.

Application filed January 25, 1906. Serial No. 297,732.

To all whom it may concern:

Be it known that we, EVAN L. LIVINGSTON, of Munhall, and WILLIAM F. McNULTY, of Allegheny, Allegheny county, Pennsylvania, have invented a new and useful Method of Electroplating, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal vertical section showing the object in the electroplating-bath. Fig. 2 is a plan view of the same. Fig. 3 is a cross-section on the line III III of Fig. 1, and Fig. 4 is a plan view of the vacuum-board with a portion broken away.

Our invention relates to the electroplating of non-metallic substances or those to which a graphite or a metal powder is applied before the electroplating operation.

The object of our invention is to provide an improved process whereby such operation may be carried out rapidly and also give good commercial results.

The invention is especially applicable to the metallizing of paper or similar coverings for walls, though it is also applicable to wood or other substances.

The invention also consists in paper or wall-covering or such an article having an electroplated coating on one face only and in the method by which such one-face coating is obtained. In case the article has more than two faces the coating may be applied to any number of faces less than the entire number.

In carrying out our process for the metallizing of wall-covering, such as paper, we wet the paper somewhat and lay it on a vacuum-board. This vacuum-board 2, as shown in Fig. 4, is provided over at least a portion of one face with a series of grooves 3. These grooves or recesses connect with a pipe or pipes 4, which are connected with an air-pump or means for forming a partial vacuum. The grooved portion of the board is preferably entirely covered by the paper, which is smoothed down carefully on the board. If any part of the paper has a tendency to buckle, the vacuum is applied, which will suck the paper against the board and hold it flat in all portions. The exposed face of the paper is then covered with an adhesive material, such as show-enamel or asphalt varnish. This coating may be applied

by a brush or in any other suitable way. This coating is preferably extended over the edges of the paper, so that these edges are protected and the paper is prevented from soaking any liquid while in the electroplating-bath. After this coating is applied the graphite or metal powder, such as copper bronze, is applied by a brush or in any other suitable manner. After the exposed face of the paper is thus prepared the contacting wires 5 and 6 are extended along the longitudinal opposite edges of the paper or similar material, one end of the wire 5 being connected to the conducting-support 7, by means of which the board is suspended in the electroplating-bath and the other end to the board. The wire 6 is connected at one end to the other conducting-support 8 and at the other end to the board. These wires act as distributors for the current which enters through the conducting-supports 7 and 8. The board and paper may then be lowered into the electroplating-bath containing the cathode 9, preferably hanging therein in a vertical position. The electroplating may then be carried out in the ordinary manner, and the paper will be provided with an even adherent coating of metal on one only of its faces—namely, the face which is prepared with the powder coating. Inasmuch as the other face of the paper is protected by the wood of the board, it will not receive the coating. This other face of the paper may be protected from receiving the metal coating by a suitable coating applied thereto or by being secured to a sheet of material which will protect it.

The advantages of our invention result from the rapidity of the operation and, further, from the uniform and adherent coating obtained. The suction system of holding the paper or similar material prevents any buckling or warping and gives a general flat surface. As the paper or wall-covering material is metallized on one side only, it is flexible and may be bent around the corners without danger of breaking the coating. This results from the metallizing of the paper on one side only, since if the paper is metallized on both sides it is stiffened to such an extent that it cannot be bent into different positions as desired.

The process may be employed for the metallizing of any article requiring the prepara-

tory coating and having any number of faces and is of especial advantage where only some of the faces are to be electroplated, the remaining faces being kept free from the coating. The faces which are to be uncoated may be protected either by holding them against other pieces of material or by covering them with a waterproof coating or in any other desirable manner. While the suction system of holding paper or similar flat material is preferable, at the same time the paper may be pasted or otherwise held in place.

Other changes may be made in the form and arrangement of the apparatus without departing from our invention.

We claim—

1. The method of electroplating, consisting in holding the article by suction and protecting one face thereof, and electroplating another face thereof while the article is so held by vacuum; substantially as described.

2. The method of metallizing flat material, consisting in applying powder to one face thereof, holding the other face against a pro-

25 tective surface by vacuum, and then electroplating the powdered surface thereof; substantially as described.

3. The method of metallizing a non-metallic flat material, consisting in holding the same flat against a backing by means of suction, covering the material with adhesive and a powder, and then electroplating the exposed face only of the material; substantially as described.

4. The method of electroplating wall-covering, or similar flat material, consisting in holding the same by suction against a flat back, providing the exposed face of the material with a metallic powder, and then electroplating in a bath in the ordinary manner; substantially as described.

In testimony whereof we have hereunto set our hands.

E. L. LIVINGSTON.
WM. McNULTY.

Witnesses:

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THOS. GATEN.