R. H. WOLFF.

ELECTRODE.

APPLICATION FILED JAN. 14, 1910.

974,008. Patented Oct. 25, 1910.

Fig. 1.

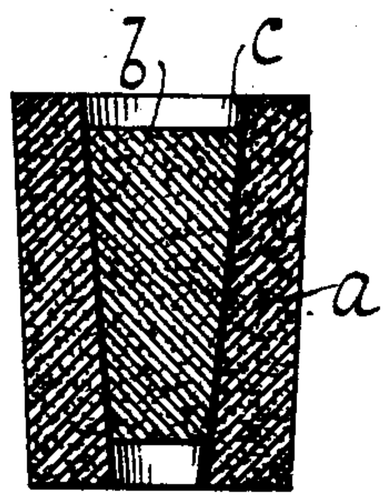


Fig. 2.

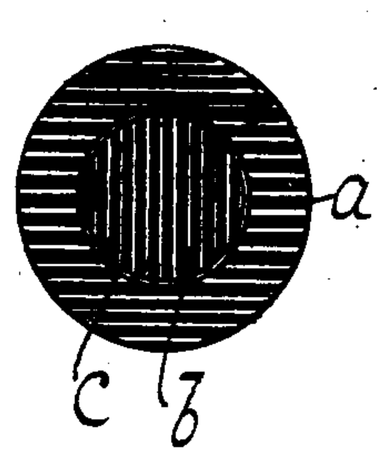


Fig. 3.

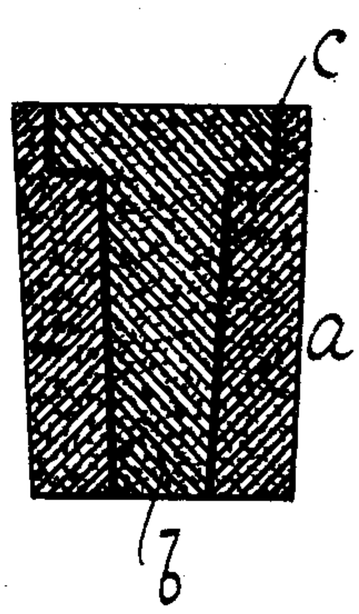
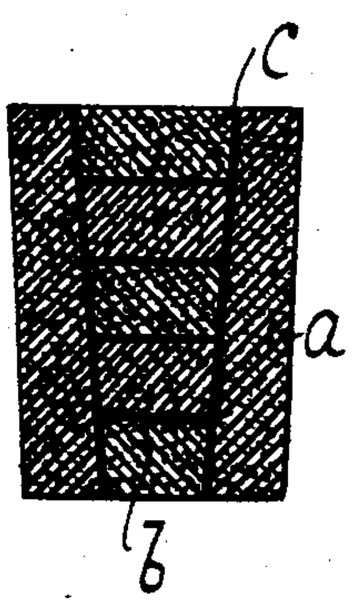


Fig. 4.



Witnesses:
William Miller
Christian Almstaedt

Inventor
Raphael H. Wolff
By his Attorneys
Hauff & Norland

UNITED STATES PATENT OFFICE.

RAPHAEL H. WOLFF, OF NEW YORK, N. Y.

ELECTRODE.

974,008. Specification of Letters Patent. Patented Oct. 25, 1910.

Application filed January 14, 1910. Serial No. 538,018.

To all whom it may concern:

Be it known that I, RAPHAEL H. WOLFF, a citizen of the United States, residing at New York city, county of New York, and State of New York, have invented new and useful Improvements in Electrodes, of which the following is a specification.

My invention relates to electrodes made of carbon mixtures used principally for electro-metallurgical operations. Such as are used in electric furnaces have to be of large dimensions and it is difficult to bake them in such a way so they are heated uniformly, and also difficult to expel the gases that form in the interior during the process of baking. To heat them sufficiently so the core of such large electrodes will be as thoroughly baked as the exterior and expel the gases completely involves a danger of spoiling the product. In order to overcome these difficulties I have devised a carbon-electrode of two or more pieces each of them made separately.

This invention is set forth in the following specification and claims and illustrated in the annexed drawing in which—

Figure 1 represents a longitudinal section of an electrode embodying this invention. Fig. 2 shows a plan view of Fig. 1. Figs. 3 and 4 show longitudinal sectional views of modifications.

I provide an exterior and interior electrode. The latter may be one piece or consist of a number of pieces. The exterior electrode or electrode part is indicated at *a* and the interior part is indicated at *b*. A suitable binder or binding material indicated at *c* can be applied to secure the two parts against separation. The exterior or its component parts can be of any shape or configuration required as for example round, oval or otherwise as indicated in the various figures of the drawing.

The exterior electrode is hollow. The hole or opening in the exterior may be wider at one end, it may be a tapered hole or it may be a cylindrical hole widened at one end so another electrode fitting in the opening of the exterior electrode may be inserted. This is to prevent the inner electrode from falling through and holding same to the exterior electrode or having it supported or confined by any means within the exterior electrode. Any space left open between the inside and outside electrodes may be filled in with tar, pitch or any suitable binder or material or a combination of same, that will fill all openings and spaces and connect both pieces or the interior, consisting of one or more pieces, as solidly as possible with the exterior electrode to insure a uniform product.

The interior opening of the outside electrode and the form of the interior electrode to be inserted therein, may be of any suitable shape, for instance as in sketch annexed, to fit into each other in any way that may accomplish the purpose, in fact any design or shape or method that will hold them together. It may be done by inserting the inner electrode either of one solid piece or a combination of pieces, to conform to the form of the hollow space in the interior of the electrode and infuse the tar pitch or any other suitable binder or material, or combination of same to fill in any open spaces afterward, substantially as described.

I claim:

1. The preparation of an electrode which consists in forming several parts of the electrode so that one part can be inserted into another to be retained therein and filling the spaces or interstices with suitable material, substantially as described.

2. As a new article of manufacture an electrode of several parts each formed of carbonaceous mixture and placed one within another and having the spaces filled with suitable binding material.

3. A new article of manufacture consisting of a number of electrode parts of carbonaceous mixture suitably formed and placed one within another, the inner part being formed of several pieces and the outer part being made to confine the inner one, said electrode having the space between the parts filled with binding material.

4. The process of making combination electrodes, consisting in previously made electrode parts so formed that the interior electrode part can be inserted into the exterior part and all spaces filled with a suitable material, to produce a uniformly solid combination electrode, substantially as described.

5. A new article of manufacture produced by forming two electrode parts of carbonaceous mixture an interior and an exterior and inserting the interior electrode part into the exterior part and then filling the open

spaces with a suitable binding material, to make one solid uniform electrode.

6. A new article of manufacture consisting of two electrode parts previously made of carbonaceous mixture, consisting of properly shaped inside electrode parts of one or more pieces inserted in a correspondingly properly formed outside electrode part and confined therein, the open spaces infused and filled with a suitable binding material, producing one solid combination electrode as a uniform article.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

RAPHAEL H. WOLFF.

Witnesses:
CHRISTIAN ALMSTAEDT,
W. C. HAUFF.