(No Model.)

C. F. BRUSH.

PROCESS OF BAKING CARBON RODS.

No. 263,758. Patented Sept. 5, 1882.

Fig. 1.

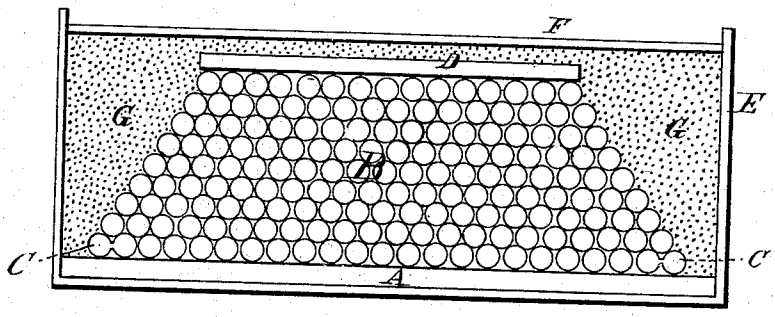
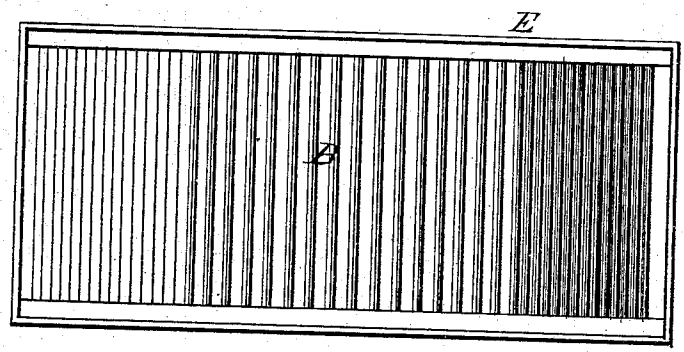


Fig. 2.



WITNESSES

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CHARLES F. BRUSH, OF CLEVELAND, OHIO.

PROCESS OF BAKING CARBON RODS.

SPECIFICATION forming part of Letters Patent No. 263,758, dated September 5, 1882.

Application filed May 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. BRUSH, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Processes for Baking Carbon Rods; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to the manufacture of the carbon rods or sticks used in electric lighting with the voltaic arc; and it consists in a method or process of baking or calcining such carbons, whereby great economy of space is effected and deformation of the carbons during the baking largely prevented.

I place in the bottom of a rectangular pot of adequate dimensions and suitable material a flat slab or plate of slate, stone, carbon, or other suitable material not liable to become bent or warped at a high temperature. On this slab is placed horizontally and side by side a layer of carbon rods nearly or quite touching each other. Directly on this layer of carbons is placed another layer in quincunx order, having one less carbon than the layer below, and so on until the pot is sufficiently filled with carbons. The pot is of such size that a space of an inch or more is left between its sides and the ends of the carbons forming the pile. The space at the sides and ends of the pile of carbons is then filled with clean sand of a suitable size of grain, and sifted, if necessary. Next the pot is tilted in the direction of the length of the carbons sufficiently to cause the sand at their higher ends to flow into the spaces between them, while the carbons are prevented from sliding out of position by the packing of sand at their lower ends. Fresh sand is added as required until the spaces between the carbons are entirely filled. During the filling process the top of the pile of carbons may be confined, if found necessary, to prevent the vertical displacement of the upper layers. A flat slab or weight may be placed on top of the pile of carbons to prevent the warping of the upper layers during baking; but this is often unnecessary. Finally, the box or pot is filled with sand to a sufficient extent to protect the carbons from access of air during baking. A lid or metal cover over all is advisable as a further protection.

In order to preserve the integrity of the pile or pyramid of carbons, both during its building and subsequently, it is necessary to prevent lateral motion of the end carbons of the bottom layer by rolling or sliding. If these carbons are simply blocked against the ends of the pot, or are confined by placing a foreign body between them and the ends of the pot, they are sure to become displaced when the pot expands in heating and the sand flows to fill the increased space. In such case the whole pile of carbons becomes more or less displaced, and many or all of the carbons are distorted. It is necessary, then, to anchor the end carbons of the first layer into the pile itself in order to prevent this accident. I overcome this difficulty by employing double or triple carbons for the ends of the first layer.

In molding the carbons many parallel rods are formed at once, all joined together by a thin web. I break up these sets ordinarily into single rods; but for the purpose described I leave two or more still joined by their webs, and use these, preferably after being baked, for the ends of the first layer of carbons in the calcining-pot. Thus rolling or sliding of the end members of this layer is effectually prevented and the stability of the whole pile is assured.

It will be seen that by my method of packing carbons the greatest possible economy of space is effected, and displacement and consequent distortion of individual carbons cannot be caused by the flowing of the surrounding sand due to the expansion of the containing vessel, or the ultimate shrinking of the pile itself, except in the latter case, so far as the top layer or layers are concerned.

If carbons are packed in the vertical position, the flowing of the sand at their upper ends when the containing pot expands spreads them apart and bends the greater portion of them.

In the drawings, Figure 1 shows in vertical section transverse to the carbons a pot filled and ready for baking. Fig. 2 is a plan view

of the pot and carbons, Fig. 1, with the cover F, slab D, and sand G removed.

In Fig. 1, A is the plate or slab on which the pile or pyramid of carbons B rests. The ends of the lowest row of carbons consist of twin carbons C C. D is the slab or weight, which may or may not be placed at the top of the pile B.

E is the containing pot, of cast-iron or other suitable material, of which F is a cover. G represents the filling-sand.

What I claim is—

1. In the process of baking or calcining carbon rods or sticks, arranging the carbon rods or sticks in pyramidal form in a receptacle and filling the interspaces and the spaces at the sides and ends of the pyramidal pile with suitable packing material, substantially as set forth.

2. In the process of baking or calcining carbon rods or sticks in a receptacle, arranging the carbon rods or sticks in pyramidal form on a slab or plate of suitable material to withstand warping and filling the interspaces and the spaces at the sides and ends of the pyramidal pile with suitable packing, substantially as set forth.

3. In the process of baking or calcining carbon rods or sticks, arranging the carbon rods or sticks in pyramidal form on a slab or plate of suitable material to withstand warping, filling the interspaces and the spaces at the sides and ends of the pyramidal pile with suitable packing, and subjecting the pile to a superior cumbent weight during the process of baking, substantially as and for the purpose set forth.

4. A pyramidal pile of carbons having the ends of its lower course formed of twin or connected carbons to prevent displacement, substantially as and for the purpose set forth.

5. The combination, with the pyramidal pile of carbon rods or sticks, of the supporting-slab, the packing, and the inclosing box, substantially as and for the purpose set forth.

6. The combination, with the pyramidal pile of carbon rods or sticks packed in suitable material, of the supporting-slab A, upper slab, D, and inclosing box E, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES F. BRUSH.

Witnesses:
JNO. CROWELL, Jr.,
HERMAN MORAN.