

UNITED STATES PATENT OFFICE.

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REFRACTORY COMPOUND FOR INCANDESCENT GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 430,508, dated June 17, 1890.

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To all whom it may concern:

Be it known that I, JONAS EMIL BLOMÉN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Refractory Compounds for Incandescent Gas-Burners, of which the following is a specification.

The invention relates to refractory compounds from which are made the incandescing elements to be hung or placed in a gas-flame and which when thus heated become incandescent.

The object of the invention is to produce a compound which readily becomes incandescent under the action of an ordinary gas-flame, and when incandescent possesses a high efficiency of illumination.

A further object is to provide a compound which shall be hard and durable under the exposure to the heat of the flame and the changes of temperature to which it is subjected.

A further object is to produce incandescing elements of this character from compounds which are readily obtainable and are comparatively cheap.

The incandescing elements made according to my invention are, when properly burned out, capable of resisting varying atmospheric conditions, such as changes in temperature and variations in moisture. They are white, and when heated to incandescence make a strong, soft, and agreeable light.

My improvements consist in the compounds hereinafter described and claimed.

I take a portion of tartaric acid—say one gallon—preferably in the form of what is known in the manufacture of such acid as “first brown liquor,” and dilute it to about 35° Baumé. I then heat it slowly over a water bath and stir in as much magnesium oxide (or other magnesium salts) as will readily dissolve. The mixture is then evaporated to dryness, after which it is placed in a crucible and moderately heated for several hours. It is then cooled off and finely ground and powdered. In place of tartaric acid I may use citric or malic or other organic acid, and

in place of magnesium oxide I may use other magnesium salts, except nitrate, sulphate, sulphide, and sulphite of magnesium. The mixture above described I shall call “mixture No. 1.” I next take the mineral known as “magnesite” (a carbonate of magnesium) in as pure a condition as possible and especially free from iron, samarskite, and the refuse from the manufacture of cream of tartar known in commerce as “grape-pomace,” (chiefly consisting of albuminoids and calcium sulphate.) The proportions which I prefer are .5 of magnesite, .1 of samarskite, and .4 of grape-pomace. This compound is thoroughly mixed, sufficient water added, and, if found necessary, a small amount of flour, starch, or other binding material, and the compound is mixed into a hard paste. This compound is burned out in a suitable furnace by a strong heat, is then allowed to cool, and is ground and well powdered.

From the compound above described the samarskite may be omitted, in which event I should employ fifty-five parts of magnesite and forty-five parts of grape-pomace. Instead of grape-pomace I may use other organic material which does not contain iron or other metal—such, for instance, as starch. I shall call this compound “mixture No. 2.”

I now take mixture No. 1, mixture No. 2, a portion of magnesium oxide, and oxychloride of zinc in the following proportions: No. 1, .4; No. 2, .4; magnesium oxide, .19; oxychloride of zinc, .01. The ingredients are thoroughly mixed, and a small amount of any kind of gum or other binding material, preferably gum-arabic, is added, and the compound is formed into a plastic mass by the addition of water, and is then molded or otherwise formed into the required shape or form for the incandescent burners. The oxychloride of zinc is used more especially for giving hardness to the compound. It might be omitted; but I prefer to use it. The incandescing elements or burners are then burned out in a suitable furnace by the application of a high degree of heat to eliminate the binding material, after which they are ready for use. No specific description of the manner of form-

ing or burning the elements is necessary, as those steps are perfectly well understood by persons skilled in the art.

I claim as my invention—

5 1. A compound for making refractory material such as herein described, consisting of a mixture of an organic acid and magnesium salts, a mixture of magnesite and of grape-pomace or other suitable organic material,
10 and magnesium oxide.

2. A compound for making refractory material, substantially as described, consisting of a mixture of tartaric acid and magnesium oxide, prepared as set forth, a mixture of
15 magnesite, samarskite, and grape-pomace,

prepared as set forth, and magnesium oxide and oxychloride of zinc.

3. A compound for making refractory material, substantially as described, consisting of an organic acid, magnesium salts, a carbonate of magnesium—such, for instance, as magnesite—and an organic material—such, for instance, as starch or grape-pomace.

In testimony whereof I have hereunto subscribed my name.

JONAS EMIL BLOMÉN.

Witnesses:

EDWARD C. DAVIDSON,
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