

UNITED STATES PATENT OFFICE.

FREDERIC W. MAYER, OF NEW YORK, N. Y., ASSIGNOR TO PERFECTED SELF-LIGHTING MANTLE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

METHOD OF PRODUCING SELF-LIGHTING GAS-MANTLES.

No. 855,798.

Specification of Letters Patent.

Patented June 4, 1907.

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To all whom it may concern:

Be it known that I, FREDERIC W. MAYER, a citizen of the United States, residing at the borough of Bronx, city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Methods of Producing Self-Lighting Gas-Mantles, of which the following is a specification.

My invention relates to the art of making self-igniting incandescent gas mantles, and more particularly it has relation to a new method of attaching the catalytic agent used to the reticulation of the mantle.

The object of the invention is to provide a self-lighting mantle in which the pellet of platinum black, or other catalytic body, shall be more firmly attached to the skeletonized webbing than has heretofore been the case, and my invention consists in the method herein described and more particularly stated in the claims appended.

Incandescent gas mantles are composed of a cotton tube which is impregnated with the salts of certain earths such for instance as nitrate of thorium. After drying, such impregnated tubes are calcined, the textile mesh being burned out reducing the thorium nitrate to thoria and leaving a finely reticulated and very delicate mineral skeleton. As this is extremely flimsy and weak it is necessary, in order that the mantles may withstand handling and transportation, that they be "dipped",—that is, given a protective coating of paraffin, collodion, or some other protective agent. It is in this condition that mantles come to the hands of the smaller manufacturers, and in order to render such mantles self-igniting it is necessary that there be attached thereto a pellet of some catalytic material,—platinum black being that most generally used. This has usually been done by making the platinum black into a paste with water, and then applying a drop or pellet of the paste to the fabric of the mantle.

As above stated, the mantle comes to the hands of the small manufacturer after it has received its protective coating or "dip" of paraffin or collodion, and after this coating has become comparatively hard. Such a coating covers the skeleton of the mantle with a continuous shell or layer and the

pellet dries around it or upon it. As a consequence, when the protective coating or "dip" is burned off, the pellet of platinum black not being in contact with nor having adherence to the inner skeleton of the mantle either falls off entirely or adheres to the mantle by the weakest and most fragile connection, which soon loosens still more under the vibration to which the mantle is constantly subject and under the action of a temperature which is liable to great and sudden changes. It is this incomplete adhesion of the catalytic pellet to the mantle which has made self-lighting gas mantles so uncertain in action and so liable to become inoperative after the first lighting.

My process contemplates the mixing the platinum black, or other catalytic agent used, with a liquid which shall be a solvent of the "dip" with which the mantle has been coated, the mixture of the catalytic agent with the solvent forming a semi-liquid paste mass which may be applied to the fabric of the mantle in the form of a pellet, or in streaks or rings. The vehicle of the paste dissolves the "dip" or protective coating away from the interior skeleton structure at the place where it is applied and the catalytic agent therefore comes into intimate contact with the network of thorium or other salt,—adheres closely thereto and is so intermingled with the fiber thereof that after the vehicle has evaporated it cannot be disengaged therefrom by jar or by expansion and contraction.

While I may use as a vehicle for the paste any liquid which has the power of dissolving the "dip" with which a mantle may be covered, I prefer to use either alcohol or alcohol mixed with glycerin in order to give the paste a better consistency, depending upon whether the "dip" is formed of collodion or paraffin and collodion, as this is a comparatively cheap yet effective solvent and easily handled. It is to be understood, however, that the chemical vehicle employed for the paste depends entirely upon the constitution of the "dip" and that I do not wish to be limited as to the solvent therefor which I may use.

It will be seen that an igniter applied by my process not being attached in any manner to the protective covering of collodion or

paraffin is not affected by the burning away of the "dip", but remains firmly attached to the mineral skeleton.

Having described my invention what I claim is:

1. The process of applying catalytic material to protected gas mantles, which consists in forming the catalytic agent thereof into a paste with a solvent of the protective covering of said mantle, applying the paste to the mantle thereby dissolving such covering at the point of application and allowing said solvent to evaporate.

2. The process of applying catalytic material to protected gas mantles, which consists in forming a paste of a catalytic agent and a solvent of the protective covering of said mantle, forming the paste into a semi-liquid pellet, applying the pellet to the protective covering of said mantle, thus dissolving away the said protective covering through the action of said solvent, and allowing said solvent to evaporate, leaving the

catalytic agent in intimate contact with the fibers of the mantle.

3. The art of forming self-igniting gas mantles, consisting of preparing a tube of textile mesh, impregnating said tube with salts of certain refractory earths, burning out the textile mesh, and leaving a skeleton of refractory material, covering said skeleton with a protective coating, applying thereto a paste formed of a catalytic agent mixed with a solvent of the protective coating, and thereby dissolving said coating at the point of application and allowing the said solvent to evaporate.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 6th day of September 1906.

FREDERIC W. MAYER.

Witnesses:

FREDERIC B. WRIGHT,
GEORGE CALVERT.