UNITED STATES PATENT OFFICE.

JACQUES PERL, OF BERLIN, GERMANY.

PROCESS OF PRODUCING PLATINUM GAS-LIGHTING PELLETS.

SPECIFICATION forming part of Letters Patent No. 615,363, dated December 6, 1898.

Application filed July 14, 1898. Serial No. 685,970. (No specimens.)

To all whom it may concern:

Be it known that I, JACQUES PERL, a subject of the King of Prussia, German Emperor, and a resident of Berlin, Kingdom of Prussia, German Empire, have invented an Improved Process for the Production of Continuous and Durable Platinum Gas-Lighting Pellets for Illuminating-Gas, (for which application for patent has been filed in Germany January 19, 1898,) of which the following is an exact specification.

This invention relates to an improved process for the production of continuous and durable platinum gas-lighting pellets for igniting gas, and has for its object to produce a self-acting gas-igniting pellet which more especially shall be impervious to the action of the atmosphere.

Lighting or igniting pellets which glow in an illuminating-gas stream are already well known. To make the same practically serviceable, however, for the automatic lighting of gas-flames, the said pellets must be so prepared or must possess the qualities, first, that they quickly commence to glow, and, secondly, that they glow as frequently as desired upon the passage of the illuminating-gas stream to be ignited across the said pellet, and thus duly effect the ignition of the said gas-stream. After the discovery was made that finely-divided platinum did not fulfil these requirements it was experimented to increase the effect of the finely-divided platinum by inserting the same (or mingling the same) within different porous bodies, according to the suggestion of Liebig. (*Pogg. Ann.*, vol. 17, 1829, page 107.) Döbereiner (*Journ. Praktischer Chemie*, 1839, vol. 17, page 158) went further in this matter and produced the finely-divided platinum within the pores of natural or artificial meerschaum (sea-foam) or clay. Hereby the action of the igniting-pellets was, it is true, increased; but, neverthelsss, the problem of causing the pellet to glow quickly and as often as was required in the illuminating-gas stream was even yet not fulfilled by this igniting-pellet prepared, as hereinbefore described, according to Liebig. It was found that the effect or action of this pellet decreased in proportion to the number of times the pellet was used, and that especially in a damp atmosphere or after a short time of use the igniting action of this pellet entirely ceased. The reason why these and other igniting-pellets consisting of an incombustible material with platinum finely divided in its pores ceased to be of use I have found in the fact that the said igniting-pellets, in consequence of their peculiar method of manufacture, always contained chlorid of magnesium or other earths, because by the reduction of the platinum salts which are in the pores of the employed material a part of the latter is always transformed by the action of the acids freed from the platinum salts (chiefly hydrochloric acid) to hygroscopic compounds. These compounds are injurious on account of their hygroscopic properties. They cause the igniting-pellet to absorb moisture, in consequence of which when the pellet is traversed by a flow of gas the heat generated in the pellet has, first, to evaporate the water or moisture absorbed by and now contained in the pellet before the pellet commences to glow. Hereby the promptness and speed of the ignition are destroyed. Furthermore, these said compounds act as fluxes and cause the igniting-pellet to become denser and more impenetrable for the gas the longer the same is in use, so that, as indicated, the said igniting-pellet after a certain number of ignitions, and usually after a very small number of such ignitions, ceases to be further capable of igniting the gas.

The recognition of the above facts led to my improved process hereinafter described.

Porous incombustible material is thoroughly mixed or mingled with a solid or dissolved platinum salt or salts. The mixture is dried at a moderate temperature, and hereupon the platinum is reduced in the pores of the incombustible material according to known methods. This can, as known, be effected by bringing the mixture to a high degree of heat in a covered crucible until the hydrochloric acid or the vapors of any other acid have disappeared. The same result might also be brought about by heating the mixture or mass in a reducing gas-flame. A pellet results herefrom containing hygroscopic salts. The salts are now extracted with diluted hydrochloric acid and subse-

quently with water until all trace of any soluble salt is removed. Instead of acid I can employ boiling water alone.

For the above-mentioned extraction of the salts hydrochloric acid could be substituted by any other acid which would dissolve the formed oxychlorid of magnesium, &c., more quickly than water.

In conclusion it will also be clear that I can according to my improved process renew or reprepare gas-igniting pellets which in consequence of possessing hygroscopic qualities, or which in consequence of slagging having taken place, have become unfit for use or spoiled. These pellets, which may have been manufactured according to a process hitherto known, I treat according to my improved process by subjecting the same to the action of suitable solvents, such as hydrochloric acid and water, in the manner hereinbefore described. The said pellets again become fit for use and serviceable in every respect for the purpose required.

Having thus fully described the nature of this invention, what I desire to secure by Letters Patent of the United States is—

1. A new process for the production of gas-igniting pellets, said process consisting, in reducing the platinum salt within the pores of an incombustible material by known means, and subsequently extracting the thereby-formed hygroscopic compounds from the pellet by means of a solvent, as set forth.

2. A new process for the production of gas-igniting pellets, said process consisting, in reducing the platinum salt within the pores of an incombustible material by known means, subsequently extracting the thereby-formed hygroscopic compounds from the pellet by means of an acid, and subsequently removing the acid retained in the pellet by washing, as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JACQUES PERL.

Witnesses:
C. H. DAY,
FRITZ SPERLING.