

# United States Patent Office.

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## IMPROVED METHOD OF UTILIZING THE WASTE PRODUCTS FROM SUGAR-REFINERIES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, VICTOR G. BLOEDE, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Method of Utilizing the Waste Products and Refuse of Sugar-Refineries; and I do hereby declare that the following is a full and exact description of my processes.

The nature of my invention consists in utilizing the nitrogenous and phosphatic compounds contained in the refuse of sugar-refineries. The first for the manufacture of the yellow prussiate of potash, the second for the manufacture of a cheap and efficient manure, or both combined for the manufacture of a fertilizer, scarcely if any inferior to second-grade guanos.

To enable others skilled in the art to make use of my invention, I will proceed to give a detailed account of my invention.

In the solution and clarification of crude brown sugar by steam, or boiling, a large quantity of animal matter, such as albumen of the egg, blood, &c., is made use of. These matters combining with the impurities of the sugar—all of which are rich in nitrogenous, sulphurous, and phosphatic compounds—by the action of heat are coagulated, and rise to the surface of the liquid in the form of a dark brown, muddy scum, which, being ladled off, (and the adherent sirup pressed out,) is thrown into the river.

To make use of the valuable chemical compounds contained therein, I proceed as follows:

To make a first-class fertilizer, I place the scum into a large wooden or other convenient tank, and add dilute sulphuric acid until it has acquired a slight acid taste. To insure thorough admixture, the scum should be previously brought to the consistency of very thick cream, and the acid added under continuous stirring. The thick slimy mass is then thoroughly dried at a low temperature, and finally reduced to a powder as fine as flour, the small gravel, &c., having been previously removed by screening. It is then ready for immediate use, and will be found equal to most of the common guanos. Muriatic, or even nitric acid may be substituted for the sulphuric acid.

To utilize the scum for the production of prussiate of potash, it is first thoroughly dried and screened, to remove the gravel, &c. It is then placed in a tightly closed iron retort, and exposed to a bright fire until the distillation of ammoniacal and tarry matters has entirely ceased. The remaining cinders or ashes in the retort are finally mixed with carbonate of potash, and exposed for several hours in an iron crucible to an intense red heat. The result is an impure prussiate of potash.

The manure, produced as above directed, contains all the constituents that make guano so valuable.

By adding a small amount of acid, the ammoniacal salts are changed to sulphates, and are thus firmly bound, while by drying the weight of the mass is reduced fifteen to twenty-five per cent., and the bulk from twenty to forty per cent. Care must however be taken that the heat is not raised to a point at which the ammoniacal salts are decomposed.

As a rule, the more dirt the sugar contains the richer will be the scum. Raw sugar contains a considerable quantity of vegetable albumen, fibres of wool from the filters, &c., which, added to the albumen or blood used in clarifying, makes the amount of sulphurous, phosphoric, and nitrogenous compounds contained in the prepared fertilizer very large.

To largely increase the amount of valuable salts contained in the scum, it is necessary to thoroughly decompose the insoluble compounds. To accomplish this in the best manner, I proceed as follows:

I make a round heap of the scum in some exposed place, where the sun has free access to it, and shelter it from rain by means of a shed. The mass soon begins to heat and ferment, and should then occasionally be stirred or raked until the fermentation ceases.

During the continuation of the process, (which will last from two to six weeks,) the heap should be frequently sprinkled with water containing a small amount of sulphuric or other acid, in order to prevent a loss of ammoniacal products.

When the process has been completed, the fermented mass should be carefully dried, ground to meal, and filled into bags for use.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The utilization of the waste scum of sugar-refineries as a fertilizer.
2. The mode of treating it with acids, to prevent loss of ammoniacal products.
3. The thorough desiccation of the scum to increase its strength and portability.
4. The utilization of the scum for the manufacture of the prussiate of potash.
5. The method of increasing the fertilizing strength of the scum, by heaping and fermenting it, substantially in the manner and for the purpose herein set forth.

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Witnesses:

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