

UNITED STATES PATENT OFFICE.

GUSTAV ADOLPH LIEBIG, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN TREATING AND PREPARING NAVASSA GUANO.

Specification forming part of Letters Patent No. **42,006**, dated March 22, 1864.

To all whom it may concern:

Be it known that I, G. A. LIEBIG, of Baltimore, in the county of Baltimore, in the State of Maryland, have discovered a new and Improved Mode of Utilizing Navassa Guano; and I do hereby declare that the following is a full and exact description thereof.

It is a well-known fact that on the Island of Navassa there are vast quantities of the article known as "Navassa guano," the supply thereof being in a measure inexhaustible, and that the same has, on account of its peculiar properties, to some extent become an article of commerce. In its crude state, as collected from the island, this article is found to analyze from forty to fifty parts of bone-phosphate of lime, from eight to twelve parts of phosphate of iron and alumina, and the remaining parts in one hundred of peroxide of iron, organic and undefined matter. It is found, also, that in its larger particles exist a greater proportion of bone-phosphate of lime and the phosphate of iron and alumina, while in the smaller ones these elements exist in a low degree.

The object of my invention is, by the cleansing process hereinafter described, to separate these larger and smaller particles, whereby I may be enabled to introduce the former more successfully into the manufacture of the fertilizer, so-called "superphosphate of lime," and the other into the manufacture of paints and other articles to which it is adapted.

The objection to the use of Navassa guano at this time, in the manufacture of this fertilizer, is its inferior quality as a phosphatic guano, and also the presence of so large an amount of peroxide of iron. This cleansing process is intended to and will obviate these objections, and at the same time supply large quantities of this latter ingredient in a state

well adapted to the manufacture of other compounds.

The process by which I propose to separate these particles is in the use of suitable machinery constructed for that purpose first to separate the larger from the smaller ones. It is obvious that this may be done in various ways. It may be measurably accomplished by sifting alone, or when the guano is in suitable condition it may be accomplished by sifting in combination with drafts of air or other means. After it has gone through this process, or even in combination with it, as may prove most convenient, the larger particles are subjected to a thorough washing by the introduction upon it of suitable currents of water, or by any other method. After this process these larger particles, when dry, will be found in convenient condition for the proposed use, and to contain upon analysis as high as from seventy-five to eighty-five per cent. of bone-phosphate of lime and the phosphate of iron and alumina, the remainder being still from fifteen to twenty-five per cent. only of the more objectionable ingredients. The debris from this process may be collected in any suitable manner and applied to the use indicated.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. The separating process herein indicated, for cleansing and purifying Navassa guano.
2. The separate articles herein described as articles of manufacture, trade, or commerce, derivable from Navassa guano, in the manner indicated, or by other analogous means.

GUSTAV ADOLPH LIEBIG.

Witnesses:

EMIL SUTRO,
AUGUSTUS H. FICK.