

UNITED STATES PATENT OFFICE.

JONAS J. SELDNER, OF BALTIMORE, MARYLAND.

PROCESS OF CONVERTING HAIR INTO FERTILIZERS.

SPECIFICATION forming part of Letters Patent No. 514,042, dated February 6, 1894.

Application filed May 20, 1893. Serial No. 474,913. (No specimens.)

To all whom it may concern:

Be it known that I, JONAS J. SELDNER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Methods of Treating Animal-Hair and Like Nitrogenous Substances, of which the following is a specification.

My invention relates to a method of reducing animals' hair, fur and wool to a powdered condition.

The object of the invention is to convert the nitrogenous substances named into dry ammoniate, thus making the same available as an ingredient for use in the manufacture of commercial fertilizers.

In carrying out my invention I take the hair, or similar substance, whatever it may be, and place it in a suitable tank having a close-fitting cover; it is preferable, though not necessary, that the tank be exteriorly jacketed in order to apply steam heat. To the hair is added a weak solution of acid, preferably sulphuric acid. The hair of some animals requires an acid of greater strength than others; therefore the strength of the acid to be used must be tempered by the addition of more or less water to suit the particular material under treatment.

In practice I have found that the relative proportions of acid and water best adapted for the purpose vary from one part acid in four parts water, to one part acid in ten of water according to the conditions under which the process is carried out and the nature of the material operated upon. That is to say, if the particular lot of hair operated upon is tanners' offal, it will be found to contain lime and in consequence of the presence of this alkaline matter a larger proportion of acid will be required; but if the lot of hair to be treated is free of alkaline matter, as is the case with hair from a furrier, then less acid will suffice. The cover of the tank is then sealed to make the same steam-tight, and heat is applied for the required time, which will vary, according to the material under treatment, from two to

five hours. The heat must be of sufficient intensity to raise the temperature of the acid-solution so that the water of the solution will be vaporized and pressure be produced in the closed vessel; the acid will at the same time be raised to a temperature at which it will attack the hair. A good working pressure in the sealed tank is one of from twenty to sixty pounds. By this treatment the hair is acted upon by the combined influence of the steam under pressure, and the heated acid, and by the action of the two, is completely disintegrated and brought to the condition of a pulp-like mass entirely lacking the distinguishing features of hair.

After the treatment above described, there is added to the mass a sufficient quantity of alkaline matter, such as lime, caustic soda, potash, phosphate-rock or bone, to take up the excess of free acid left in the mass. The mass is then dried in any suitable way, which leaves it in a powdered or lump state. If the latter, the lumps are crushed and ground, thus making a product of dry ammoniate.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The method of reducing animal hair, and such like nitrogenous substances, to dry ammoniate in a powdered condition, consisting in mixing the hair or other substance with a weak solution of mineral acid, inclosing both in a steam-tight vessel, then applying sufficient heat to vaporize the water of the acid-solution and produce a pressure in the sealed vessel and heat the acid to a temperature at which it will disintegrate the hair; then adding sufficient pulverized alkaline matter to neutralize the free acid; and then drying the mass, as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JONAS J. SELDNER.

Witnesses:

CHAS. B. MANN, Jr.,
ALVAN MACAULEY.