

UNITED STATES PATENT OFFICE.

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PARIS, FRANCE.

IMPROVED MODE OF DISINTEGRATING VEGETABLE SUBSTANCES FOR PAPER-PULP.

Specification forming part of Letters Patent No. 47,505, dated April 25, 1865.

To all whom it may concern:

Be it known that we, Z. G. A. N. P. ORIOLI, A. A. FREDET, and P. A. H. MATUSSIÈRE, all of Paris, in the Empire of France, have invented a new and Improved Process for Disintegrating Fibrous Materials; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to fully understand and use the same.

This invention is based on the discovery that aqua-regia, when applied in the proper proportion, destroys all ligneous matters without attacking the fiber or cellulose.

The aqua-regia which we use in carrying out our invention is composed of nitric and hydrochloric acid mixed together in about the following proportions: nitric acid, from five to forty per cent.; hydrochloric acid, from ninety-five to sixty per cent. We employ nitric acid in its raw state before it is bleached, and just as it is drawn from the reservoirs or tanks in which it is manufactured, and the hydrochloric acid we employ in the state in which it usually comes in the market. The variation in the proportion of the two acids composing the aqua-regia is rendered necessary by the variable nature of the incrustating elements which attend the vegetable fibers, and also of the variable strength of the acids. It is therefore necessary to determine in each particular case, by a preliminary test, the exact proportion in which the acids have to be mixed.

Our process is particularly applicable for the purpose of disintegrating wood of different kind, or for straw and other vegetable

substance, for the purpose of preparing paper-pulp, and we proceed in the following manner: After the strength of the acid has been once determined for a particular kind of substance the wood is reduced into chips, the straw or other material of small diameter into fragments, and allowed to dry, so as to avoid an excess of water, which would weaken the aqua-regia. These chips or other fragments are digested in the acid bath till they have absorbed their weight of the liquid, and the remaining acid is poured off and saved for a subsequent operation. After the vegetable substance has been removed from the acid it is washed in clean water and the fibers are separated from the incrustating material by a vertical millstone, such as generally used by straw-hat manufacturers, or by any other suitable mechanism. By these operations a pulp is obtained of a brownish yellow hue, which, after having again been washed, must be bleached by any of the well-known processes generally practiced in the manufacture of paper-pulps.

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

The within-described process for disintegrating vegetable materials by the application of aqua-regia, substantially in the manner herein set forth.

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Witnesses:

E. SHERMAN GOULD,
C. CHIOS.