

UNITED STATES PATENT OFFICE.

CORNELIUS T. TOMKINS, OF HILLSBOROUGH, CANADA.

IMPROVEMENT IN PROCESSES OF TREATING GYPSUM.

Specification forming part of Letters Patent No. **177,301**, dated May 9, 1876; application filed February 16, 1876.

To all whom it may concern :

Be it known that I, CORNELIUS T. TOMKINS, of Hillsborough, in the county of Albert, Province of New Brunswick, and Dominion of Canada, have invented a new and useful Process of Treating Gypsum, which is fully described in the following specification:

The object of my invention is to produce a useful, non-injurious, and comparatively inexpensive material, well adapted for use in the manufacturing of paper, easy of admixture with the stock or pulp, and of such a character that the final result shall be the production, at less cost, of a firm, hard article of paper.

The object, further, of my invention is to produce an improved and inexpensive article of manufacture, adapted for use in the finishing of bleached cotton goods, and for such other purposes as on trial the said material invented by me shall prove useful.

The nature of my invention consists in reducing gypsum, or sulphate of lime, to an absolute condition of fineness by means of grinding and calcination, and then by a further process of agitation or manipulation with water, the agitation being continued until the calcined plaster has taken up and combined with all the water it is capable of, and, at the same time, all its set or tendency to harden, in combination with the water, has been destroyed, and the plaster itself is completely broken up, disintegrated, and thrown down, and by such method reduced to an impalpable condition, best adapted for the purposes described, it being understood that the two first stages of reduction—viz., the grinding and calcination—are those already in common use, and that the new article of manufacture invented by me is the resultant of the third stage or process—viz., the continued and persistent agitation or manipulation of the calcined plaster with water until it has taken up all the water it is capable of, and until all the set or tendency of the plaster to harden has been overcome and destroyed, and the plaster itself is completely thrown down and disintegrated, as described.

To prepare my said new article of manufacture, I first take gypsum, or sulphate of lime, and submit the same to the well-known process of grinding and calcination, resulting

in the article known as calcined plaster, or plaster-of-paris. In this condition it is possessed of certain well-known characteristics—viz., it is more or less gritty and palpable, according to how fine it has been ground, and is possessed of a strong affinity for water, combining with it in the proportion of from eighteen to twenty-two per cent. of its own weight, and, in combination with water, will set and become hard, assuming, in a measure, the condition it was in before being ground and calcined.

In order to disintegrate and render impalpable the calcined plaster, and to reduce it to an ultimate condition of fineness, I mix it with about seven times its weight of water, and then stir, agitate, grind, or otherwise manipulate the same (without which no disintegration would occur) for about the space of forty minutes, when the plaster becomes broken down and disintegrated, and loses all its tendency or ability to set and become hard, and in this condition is eminently adapted for the uses above noted.

As to the quantity of water to be employed, it may be varied as the requirements of use shall show to be desirable. After disintegration the excess of water may be removed, if desired, by evaporation, and the article supplied to the consumer as a dry, impalpable dust or powder, or it may be used direct in intermixture, as described.

I am aware that gypsum, or sulphate of lime, or ground alabaster, uncalcined, has been employed in the manufacturing of paper and the finishing of cotton goods, and I do not claim it; but

What I do claim as my invention, and desire to secure by Letters Patent of the United States, is—

The within described process of preparing hydrated gypsum in the form of an impalpable powder, which process consists in agitating in a body calcined gypsum with more water than is sufficient to effect the hydration of the same, but until the process of hydration is complete, substantially as set forth.

CORNELIUS T. TOMKINS.

Witnesses:

DANIEL F. TOMPKINS,
EMMA L. TOMPKINS.

750 words.