

UNITED STATES PATENT OFFICE.

JOHN S. ROSENTHAL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN TREATING ASBESTUS AND OBTAINING USEFUL PRODUCTS THEREFROM.

Specification forming part of Letters Patent No. 130,663, dated August 20, 1872.

Specification describing a Mode or Process of Utilizing Asbestos and Products of the same, invented by JOHN S. ROSENTHAL, of Philadelphia, Pennsylvania.

The object of my invention is to utilize asbestos or amianthus by disintegrating the crude mineral, extracting the fibers therefrom, and finally pulping the fibers.

In carrying out my invention it is essential, in the first instance, that the fibers should be separated from the earthy and other non-fibrous portions of the mineral before the said fibers are pulped. In order to attain this preliminary object the crude asbestos or amianthus may be treated in the manner described in the Letters Patent for asbestos fiber allowed to me on the 3d day of August, 1872—that is to say, by a strong lye—which has a tendency to open and disintegrate the crude mass, and, at the same time, strengthen the fibers and render them more flexible. After this preliminary treatment the fibers may be still further disintegrated by careful manipulation or by suitable mechanical appliances, and then washed preparatory to being pulped by the rubbing and tearing action of the well-known pulping-engine.

It should be here understood that I do not propose to convert the longer fibers of asbestos or amianthus into pulp, for they afford a more valuable product—namely, an available fiber for yarn and textile fabrics; but in quarrying the mineral a great portion consists of fragments too short for conversion into fibers for textile fabrics, but long enough for pulping, the long fibers being twisted into the yarn for which I have this day applied for Letters Patent.

Many attempts have been made to utilize asbestos by making it into pulp; without much success, however, owing, it is believed, to imperfect preliminary disintegration and the retention of those earthy portions of the mineral which render the fiber brittle, and to the fracturing of the fibers by grinding the mineral prior to pulping the same; for I consider it essential to the production of a good asbestos pulp to first obtain the pure fiber and then to disintegrate it by the rubbing and tearing operation adopted in pulping rags, &c.

The asbestos pulp made in accordance with my invention may be molded or otherwise converted into many useful fire-proof articles, or into slabs or thin paper or pasteboard-like sheets, the pulp having self-adhesive proper-

ties which retain it in shape after being molded or otherwise formed, although it is advisable, in most cases, to add a little size or other adhesive substance to the pulp to render the mass more hard and solid.

It is not necessary, in all cases, to adhere to the preliminary alkaline treatment of the crude asbestos, as petroleum and other equivalent hydrocarbons have the effect of disintegrating the crude mineral; and other substances may be employed for the same purpose. In fact, the preliminary disintegration of the crude asbestos or amianthus forms no part of my present invention, a thorough separation of the fibers from the earthy matter by any chemical and mechanical appliances being the main preliminary necessity.

Much of the asbestos found in this and other countries is of a brown color; but this can be removed by subjecting the fibers, prior or subsequent to pulping, to a solution of sulphuric or other equivalent acid, or to any bleaching material or composition. Alum may also be used in treating the fibers or the pulp with other substances, and in a manner which the nature of the mineral may suggest, for it should be understood that the characteristics of asbestos and amianthus differ in different localities, the mineral, consequently, demanding variable treatment. Whatever treatment is adopted, however—whether chemical or mechanical—the fibers should be effectually separated from foreign matter prior to pulping, and the pulping should be accomplished not by the preliminary fracture of the fibers while they form a part of the crude mineral, but by rubbing and tearing while they are in a condition of pure fibers.

I claim as my invention—

1. The utilizing of asbestos and amianthus by disintegrating the fibers, separating the same from earthy and other foreign matter, and converting the cleansed fibers into pulp, all substantially as set forth.

2. A pulp made of the within-described disintegrated and cleansed fibers of asbestos or amianthus.

3. Slabs, sheets, and other objects made by molding or otherwise forming the within-described asbestos or amianthus pulp.

J. S. ROSENTHAL.

Witnesses:

H. HOWSON,
WM. A. STEEL.