UNITED STATES PATENT OFFICE.

TREAT S. BEACH, OF NEW YORK, N. Y.

IMPROVEMENT IN EXPLOSIVE COMPOUNDS.

Specification forming part of Letters Patent No. **138,841**, dated May 13, 1873; application filed April 11, 1873.

To all whom it may concern:

Be it known that I, TREAT S. BEACH, of the city of New York, county and State of New York, have invented a new composition of matter, being an explosive compound, useful for blasting rocks and other similar purposes, of which the following is a specification:

My invention consists in a composition of matter made by combining one or more of each of the following four classes of substances, viz: First, an alkaline nitrate or some salt which will produce substantially the same result; second, nitro-glycerine or some of the equivalent nitro-substitution products; third, wood-fiber or other material containing cellulose; fourth, parraffine or equivalent wax-like material, such as asphaltum, pitch, resin, spermaceti, wax, and the like.

The following description will enable any one skilled in the art to make and use the invention.

I take of the following ingredients, namely, nitrate of potash, nitro-glycerine, wood-fiber, and paraffine, which should be employed in about the following proportions: nitrate of potash, forty parts; nitro-glycerine, forty parts; wood-fiber, thirteen parts; paraffine, or its equivalent, seven parts. The solid ingredients should be separately reduced to a fine powder in any suitable way, and thoroughly mixed. Then the nitro-glycerine is to be added and all thoroughly incorporated together. It is best to prepare the wood-fiber (preferably poplar) by first reducing it to a pulp, and then neutralizing its natural acids by boiling it in an alkaline solution; for example, put, say, twenty pounds of the pulp into fifteen gallons of water, in which four ounces of bicarbonate of soda are dissolved, and boil it for three hours, removing it from the boiling solution and washing it well in pure water. If it still has an acid reaction repeat the boiling in another soda solution and again wash. Then dry the pulp and reduce it to a fine powder. The paraffine in this composition serves to prevent the absorption of moisture by the nitrate of potash, while it does not impair in any degree the explosive character of the compound, but in some degree improves it.

In place of the paraffine hard pitch may be used, which in this compound would be the equivalent of the paraffine, or both pitch and paraffine may be employed, using, say, two parts of pitch to five parts of paraffine.

I have described the best method with which I am acquainted for carrying out my invention; but I do not limit myself to the exact substances named, nor to the proportions stated, since an expert chemist can readily suggest many variations in both without essentially changing the character of the compound.

I would advise the use also of small quantities of sulphur and charcoal, one or both, say, two parts of each, but these are not essential.

What I claim by my invention, and desire to secure by Letters Patent, is—

1. The explosive compound, made of the ingredients herein specified and compounded, as described.

2. An explosive compound, made with any three of the four classes herein specified.

TREAT S. BEACH.

Witnesses:
T. R. GUE,
A. W. HIGGINS.