

# UNITED STATES PATENT OFFICE.

WILLIAM A. GILL, OF TARRYTOWN, NEW YORK, ASSIGNOR TO RENDROCK POWDER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## BLASTING-POWDER.

No. 798,780.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed January 25, 1905. Serial No. 242,669.

*To all whom it may concern:*

Be it known that I, WILLIAM A. GILL, a citizen of the United States of America, and a resident of Tarrytown, county of Westchester, and State of New York, have invented a certain new and useful Improvement in Blasting-Powders, of which the following is a specification.

My invention relates particularly to that class of explosives known as "chlorate" explosives and which are commonly employed for blasting purposes, though are not limited to such use.

The compound consists in the combination, with chlorate of potash, of resin, asphalt, and wood pulp or fiber mixed together in certain proportions.

In carrying out my invention I preferably nitrate the wood pulp or fiber and then mix the resin, asphalt, and wood fiber together and finally mix the resultant mass with the chlorate of potash. I have found that about eighteen per cent. of a low-grade commercial resin, about one per cent. of asphalt, and about one per cent. of nitrated wood pulp or fiber constitute proportions of the foregoing ingredients which give good results, and in preparing the explosive I take the materials in the proportion of about ninety-two pounds of resin, four pounds of asphalt, and four pounds of nitrated wood fiber, mix them thoroughly, and finally mix the resultant mass with chlorate of potash or other oxygen-bearing material in the proportion of about twenty per cent. of the resinous mixture and about eighty per cent. of chlorate of potash. This I have found produces an inexpensive explosive of high qualities, easy to handle, safe to manufacture, and affected by moisture to but a very small extent. The resin, asphalt, and wood-pulp should be pulverized, ground, or otherwise reduced to a fine condition and the wood pulp or fiber nitrated, washed, and dried before the said ingredients are mixed together, as above set forth. The other materials may be nitrated, if desired; but I do not deem this so necessary as the nitration of the wood pulp or fiber. The nitrating of the other ingredients, however, would tend to slightly increase the strength of the explosive.

While chlorate of potash will probably be

employed as the oxygen-bearing material, other oxygen-bearing materials, such as permanganate of potash, may be employed, if preferred.

In preparing the asphalt I preferably evaporate any free water contained therein before mixing it with the resin and wood pulp or fiber, as the commercial asphalt usually contains a considerable quantity of free water.

I consider it extremely advantageous to mix the asphalt, nitrated wood pulp or fiber, and resin together first before mixing them with the chlorate of potash for several reasons. First, I have found that it is almost impossible to thoroughly mix such a small quantity of nitrated wood fiber and asphalt directly with the mass as a whole, but that by thoroughly mixing the same with the resin the proportion of asphalt and wood fiber being very much larger with respect to the resin than with the mass as a whole it is possible to obtain a homogeneous mixture which may then be readily mixed with the chlorate of potash, so that the whole may be homogeneous when completed; second, the chlorate of potash is inexplosive by itself, as is also the combination including resin, asphalt, and nitrated wood fiber. Thus the materials do not constitute an explosive until finally combined, whereby every step in the manufacture up to the final mixing is absolutely safe.

What I claim is—

1. An explosive compound comprising chlorate of potash, resin, asphalt and nitrated wood fiber.

2. An explosive compound comprising chlorate of potash and resin in the proportion of about four to one, together with a small quantity of asphalt and a small quantity of nitrated wood fiber.

3. An explosive compound comprising about eighty per cent. of chlorate of potash, eighteen per cent. of resin, one per cent. of asphalt, and one per cent. of nitrated wood fiber.

In witness whereof I have hereunto set my hand this 17th day of January, 1905.

WILLIAM A. GILL.

Witnesses:

D. HOWARD HAYWOOD,

C. F. CARRINGTON.