

# United States Patent Office.

WILLIAM MILLS, OF NEW YORK, N. Y.

Letters Patent No. 112,163, dated February 28, 1871.

## IMPROVEMENT IN EXPLOSIVE COMPOUNDS.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that I, WILLIAM MILLS, of the city, county, and State of New York, have invented a new and useful "Improvement in Explosive Compounds;" and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same.

This invention relates to a new and important improvement in the compositions and combinations of compounds which generate a highly powerful explosive composition, designed as a substitute for nitro-glycerine, gunpowder, and other explosive compounds used for similar purposes.

It consists in a compound and its combination, as hereinafter named, in any desired proportions, to adapt it to the purposes for which it may be intended.

In carrying out my invention I take one part, by weight, of carbolic or cresylic acid, either separately or together, with four or five parts of nitric acid, according to the specific gravity—that at 42° only four parts is required.

A stone-ware retort ten times the capacity of the quantity employed is then charged, first, with the carbolic acid or cresylic acid, and nitric acid added very gradually.

When the violent chemical action has nearly subsided the retort with its contents is submitted to a heat of 212° Fahrenheit, in a sand-bath, and allowed to remain as long as any red fumes are evolved.

The product of this operation forms a substance that gradually becomes of the consistence and appearance of wax, which I have named oxidized carbolic acid.

Of this substance I take one part and dissolve it in its own weight of wood-spirits or alcohol.

I then add to this solution lead, or its oxyde or carbonate, in quantity sufficient to saturate the same.

All other metals and their oxydes or carbonates, as well also the earthy oxydes and carbonates, such as lime, baryta, &c., are all soluble in this solution, and may be used for the same purpose, but I use and give the preference to metallic lead.

This metallic solution forms an explosive varnish, useful for treating paper cartridges and many forms of fire-works.

The compound for blasting is formed by saturating sawdust with a hot solution of saltpeter in the proportion of one part to seven of water. This, when dried, is again saturated with the explosive varnish, and, after drying in the sun or in any other suitable manner, the compound is complete and fit for use.

Waste, tow, flax, cotton, and all other ligneous and many carbonaceous substances may be substituted for the sawdust.

For guns, &c., saltpeter alone is saturated with the varnish in proportion to the strength required. Equal parts by weight of the varnish and saltpeter form the highest quality, its explosive force being equal to the fulminate of mercury, yet perfectly safe to handle.

This compound does not ignite more readily than gunpowder, while it possesses much greater explosive power.

It may be readily adapted to fire-arms and for other purposes, especially for torpedoes, blasting and mining purposes, as its explosive power is greater than nitro-glycerine, while it may be transported and handled with as much safety as common gunpowder.

Having thus described the nature and mode of making my invention,

I desired to secure by Letters Patent—

1. The within-described wax-like production, which I have named oxidized carbolic acid, as a new article of manufacture.

2. The oxidized carbolic acid herein described, in combination with metal, or metallic, or earthy oxides, or their carbonates, substantially as herein described.

3. The oxidized carbolic acid herein described, in combination with metal or metallic and earthy oxides and sawdust, or any other ligneous substances treated with niter, substantially as and for the purpose herein set forth.

4. The oxidized carbolic acid herein described, in combination with alcohol, spirits, or ether, and metal or metallic oxides, for the purpose of producing an explosive varnish, substantially as and for the purposes herein set forth.

WILLIAM MILLS.

Witnesses:

THOS. H. GRANT,  
O. WILLIAMS.