

UNITED STATES PATENT OFFICE.

THOMAS TAYLOR, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVED EXPLOSIVE COMPOUND FOR USE IN FIRE-ARMS, BLASTING, &c.

Specification forming part of Letters Patent No. 97,566, dated December 19, 1869.

To all whom it may concern:

Be it known that I, THOMAS TAYLOR, of Washington city, in the District of Columbia, have invented a new and useful Composition of Matter, which I propose as a substitute for gunpowder, gun-cotton, glycerine, and other explosives used in the blasting of rocks, and for general mining purposes, and for use in small arms, for the explosion of torpedoes and ordnance projectiles.

This new composition of my invention possesses several new and important features. It may be combined with sand and subjected to great friction without igniting, while it ignites with heavy concussion. It contains in its composition paraffine, being a new application of this hydrocarbon as an explosive. Paraffine is composed of carbon 24, hydrogen 25. It burns without residue; it, therefore, increases at once the volume of gases and the explosive force, while, from its greasy character, it holds the particles of the mass together, thus preventing mechanical decomposition, which makes it useful in the formation of cartridges for small-arms. When about equal parts of chlorate of potash and the yellow prussiate of potash are combined with about one thirty-second part by weight of paraffine, the mass being intimately mixed by mechanical means and reduced to an exceedingly fine powder, a highly-explosive compound is formed. A spark, or match, or flame instantly ignites the powder. The whole mass explodes almost instantaneously, and, therefore, for blasting purposes is much superior to gunpowder. For small-arms it can be used with safety by simply increasing the proportion of paraffine. The time of combustion may be lengthened to any degree necessary.

This new explosive does not require to be combined with water. Granulation decreases its explosive properties, which is not desirable for blasting very hard rocks; but granulation may be employed for small-arms to advantage. Nitrates should never be combined with chlorate of potash, or any of its combinations, as such combinations lead frequently to spontaneous combustion, and are easily exploded by friction, and sometimes by compression.

Although the ingredients herein set forth may be all combined with water and granu-

lated, I prefer, for the blasting of rocks, bursting of rifle and smooth-bore shells, as used in ordnance, and for the explosion of torpedoes, a mixture formed by mechanical means, and in the following manner:

First. I take, say, one pound of ferro-cyanide of potassium—yellow prussiate of potash—and reduce it by mechanical means to a very fine powder.

Second. I then combine with the yellow prussiate of potash about one thirty-second part of paraffine, forming a very intimate mixture.

Third. I take one pound of the chlorate of potash and reduce it by mechanical means to an impalpable powder, the finer the better.

I next combine these ingredients intimately in the dry state by passing them through a sieve several times, or by any other mechanical device.

When properly combined this mixture is highly explosive and is ready for use, but for transportation purposes I prefer to pack the mealed yellow prussiate of potash and paraffine mixture and the mealed chlorate of potash by themselves, in which condition no accident could take place. In this way large quantities may be stored or transported in perfect safety. The ingredients in their separate condition would not explode were a hot iron placed in either.

When I desire to make the combustion slow, to render it fit for small-arms, I increase the proportion of paraffine. Paraffine, when combined with explosives, tends to prevent their spontaneous combustion. It also lessens their tendency to explode by concussion or friction. I sometimes add paraffine to ordinary gunpowder to make it burn more slowly.

Having described the nature of my invention and its mode of manufacture I shall now set forth my claim.

What I claim as new, and desire to secure by Letters Patent, is—

The new combination of ingredients forming a new explosive, for the purposes set forth and described, substantially.

THOMAS TAYLOR.

Witnesses:

S. H. SWETLAND,
A. MCCALLUM.