

UNITED STATES PATENT OFFICE.

TAL. P. SHAFFNER, OF LOUISVILLE, KENTUCKY.

IMPROVED EXPLOSIVE COMPOUND.

Specification forming part of Letters Patent No. 98,427, dated December 28, 1869.

To all whom it may concern:

Be it known that I, TALIAFERRO P. SHAFFNER, of the city of Louisville, county of Jefferson, State of Kentucky, have discovered or invented a new and useful Improved Explosive Compound; and I declare the following to be a full and exact description thereof.

The nature of my invention consists in the use of gun-cotton treated with nitro-glycerine, thus making an explosive substance of vast use for artillery and blasting purposes.

By preference I take one pound of gun-cotton or other nitrated fiber and saturate it well and evenly by pressure or otherwise with one pound, more or less, of nitro-glycerine.

This compound—namely, gun-cotton and nitro-leum—will have a greasy appearance and moist, and it may be handled with perfect safety. It cannot be exploded by an ordinary blow, nor can it be ignited by a spark.

If the gun-cotton thus saturated is closely packed it will require the heat of the usual devices required to explode nitro-glycerine.

By this arrangement four important considerations are obtained, namely: First, the explosive force of the nitro-glycerine is secured in combination with the gun-cotton or explosive substance of high power, thus economizing the space in the drill-hole for blasting more than can be effected by the use of a non-exploding substance as an absorbent, explosive powers being considered; second, a gun-cotton cartridge thus saturated may be handled with security, as no ordinary force striking it can explode it; third, the compound may be placed in water and stored for an indefinite period and its explosive power not disturbed, and it may be shipped in water throughout the world and will not be subject to decomposition, nor will it be possible to explode it by fire in case it should be subjected to a conflagration; fourth, in charging a drill-hole with a cartridge of this compound the hole may be tamped with more safety than can be accomplished in the use of blasting-powder.

It must be remembered as principles of science that gun-cotton, simple, will explode by 266° of Fahrenheit, and that nitro-leum will explode at 360° Fahrenheit. The former will explode by a spark, but the latter will not; that the latter, however, will explode by percussion at a degree unknown precisely, as is the case with the fulminates. But when the two are thus compounded or united, neither will explode by spark, neither will explode by percussion, and the gun-cotton cannot be exploded under the degree of heat required to explode the nitro-glycerine.

I am aware that nitro-glycerine has been mixed with gunpowder, and patented some years ago in Europe, but that compound assumes a plastic or a mixture that requires a casing to hold it in shape.

Having thus described my invention sufficiently clear and distinct to make others skilled in the sciences and arts to which it belongs to make and use the same, what I claim, and desire to secure by Letters Patent as my discovery and invention, are—

1. The combination of gun-cotton or other high-explosive substance with nitro glycerine, in the manner substantially as hereinbefore described.
2. The combination of gun-cotton or other elastic explosive substance with nitro-glycerine, in the manner substantially as hereinbefore described.
3. The combination of nitrated fiber, of whatsoever form or texture, with nitro-glycerine, in the manner substantially as hereinbefore described.
4. The combination of twisted, compressed, loose, or other conditioned nitrated or explosive fiber, with nitro-glycerine, in the manner substantially as hereinbefore described.

TAL. P. SHAFFNER.

Witnesses:

MERWIN DEVEAU,
NATHANIEL GILL.