

# United States Patent Office.

TALIAFERRO P. SHAFFNER, OF LOUISVILLE, KENTUCKY.

Letters Patent No. 93,754, dated August 17, 1869.

## IMPROVED EXPLOSIVE COMPOUND.

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, TALIAFERRO P. SHAFFNER, of Louisville, Jefferson county, State of Kentucky, have discovered or invented a new and improved exploding compound, which I call Metalline Nitroleum; and I do declare that the following is a full and exact description thereof.

The nature of my discovery or invention consists in mixing nitroleum, or nitro-glycerine, with metallic substances, for the purpose of using, with increased utility, the explosive power contained in the said nitro-glycerine for blasting or disrupting-purposes.

To enable others skilled in the arts to which it belongs, to make and use my invention or discovery, before mentioned, I will now proceed to describe the process employed by me.

By preference I take one pound of pulverized red lead and one pound of nitro-glycerine, and mix the two together, and thus mixed, I place the compound in a casing of intestines, bladder, or like material. In a short time, say within one day, the mixture solidifies to some extent, or becomes set, or a little thick. I tie the ends of this sack or bag, thus confining the mixture in the form of a cartridge.

This substance or mixture is exploded by the insertion of a percussion-cap, and the exploding of the cap will explode the nitro-glycerine.

The benefits derived by this compound may be briefly mentioned, as follows:

The metallic powder being elastic, if a heavy blow is put upon the compound, an explosion is not likely to occur; that is to say, any mechanical force that might be thrown upon the substance would not likely, probably, or scarcely possibly, explode it; while, on the other hand, the liquid nitro-glycerine, being non-compressible, a sharp blow does sometimes explode it. The metal, to some extent, engages the free acids, that might, by faulty washing, remain in the nitro-glycerine, but, in order to further secure this com-

pound from decomposition, I sometimes mix with it a small quantity of plaster of Paris, say about one-quarter of a pound to the two pounds of mixture, before described. I prefer this plaster of Paris to be natural, and not calcined.

Besides the red lead, before named, I use plumbago, white lead, oxides of metals generally, metallic filings, crystals, or precipitated metallic substances, or metallic residuums. These various forms or conditions of metal may be used in many instances, or under various circumstances. One of the advantages of using lead, or metal of heavy specific gravity, is the further certainty that the cartridge will sink in a greater depth of water with more rapidity and certainty than nitro-glycerine singly, or when combined with a lighter substance than water.

Any available alkaline substance may be mixed with the before-named compound of nitro-glycerine and metallic atoms, for the purpose of engaging any free acids that might remain or exist in the said nitro-glycerine.

Having now fully described the nature and process of my discovery or invention, sufficiently full and distinct to enable one skilled in the art to execute the same.

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

1. A compound, composed of a mixture of nitro-glycerine, with metallic powder or atoms, however formed or produced, substantially in the manner and for the purposes hereinbefore described.

2. The mixture of plaster of Paris, or any alkaline substances, with the above-described compound, substantially in the manner and for the purposes hereinbefore described.

TAL. P. SHAFFNER.

Witnesses:

JAMES DEYREAU.

GEORGE S. HAMLEN.