

UNITED STATES PATENT OFFICE.

SERGEY DARK SMOLIANINOFF, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR,
BY MESNE ASSIGNMENTS, TO THE AMERICANITE MANUFACTURING COM-
PANY, OF VIRGINIA.

EXPLOSIVE COMPOUND.

SPECIFICATION forming part of Letters Patent No. 432,336, dated July 15, 1890.

Application filed June 28, 1887. Serial No. 242,810. (No specimens.)

To all whom it may concern:

Be it known that I, SERGEY DARK SMOLIANINOFF, a citizen of the United States, residing in the city and county of San Francisco, in the State of California, have invented certain new and useful Improvements in High Explosives; and I do hereby declare that the following is a full, clear, and exact description of my said invention and the manner in which I proceed to carry out the same.

My invention relates to that class of high explosives which are insensitized or rendered less sensitive to agitation or concussion. I have discovered that by adding to nitro-glycerine a proportion of some one of the alcohols the resulting compound is insensitive to mere agitation or concussion, and yet may be exploded at will by a fulminate. In forming this insensitive compound the ethers of the alcohols are the equivalents of the alcohols, and in exploding it any detonating explosive is the equivalent of the fulminate. The degree of insensitiveness of the compound is in direct proportion to the quantity of alcohol added, and its perfection is dependent on the purity of the ingredients. The best form of my new explosive compound, as determined by experiment, results from adding one part, by volume, of methyl alcohol or wood spirit to three parts, by volume, of nitro-glycerine. The best form of the compound containing an ether of alcohol is obtained by adding one part, by volume, of acetic ether of glycerine to three parts, by volume, of nitro-glycerine. I have found by experiment that the union of the ingredients is facilitated by moderately heating the nitro-glycerine. I have also found that the most perfect compound results from what may be termed a saturated solution of nitro-glycerine and methyl alcohol, and that the point of saturation depends upon the temperature of the ingredients and their freedom from water or other adulteration, varying slightly from the proportions above stated as these conditions vary. When an exactly-saturated solution is obtained, the compound is stable, and there is no subsequent separation of the ingredients. With an excess of alcohol there may be a subsequent

separation to the extent of such excess; but with the proportions above stated such excess is comparatively slight and impairs neither the strength nor the safety of the compound. By the admixture of the usual absorbents—that is, of such dry substances as will take up the liquid by saturation or absorption—the compound is converted into a mass resembling dynamite.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An explosive compound consisting of a mixture of nitro-glycerine and an alcohol, substantially as described.
2. An explosive compound consisting of a mixture of nitro-glycerine and methyl alcohol, substantially as described.
3. The process of exploding a compound composed of nitro-glycerine and an alcohol by the detonation of a fulminate in or upon the same, substantially as described.
4. The process of exploding a compound composed of nitro-glycerine and methyl alcohol by the detonation of a fulminate in or upon the same, substantially as described.
5. The combination of nitro-glycerine, an alcohol, and a fulminate, substantially as and for the purposes described.
6. The combination of nitro-glycerine, methyl alcohol, and a fulminate, substantially as and for the purposes described.
7. An explosive compound consisting of a mixture of nitro-glycerine, an alcohol, and an absorbent, substantially as described.
8. The process of exploding a compound composed of nitro-glycerine, an alcohol, and an absorbent by the detonation of a fulminate in or upon the same, substantially as described.
9. The combination of nitro-glycerine, an alcohol, an absorbent, and a fulminate, substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

SERGEY DARK SMOLIANINOFF. [L. S.]

Witnesses:

LEE D. CRAIG,
ROGER JOHNSON.