

UNITED STATES PATENT OFFICE.

GARLAND N. WHISTLER, OF FORT WADSWORTH, AND HENRY C. ASPINWALL, OF WEST NEW BRIGHTON, ASSIGNORS, BY MESNE ASSIGNMENTS, TO BENJAMIN S. HARMON, OF NEW YORK, N. Y.

SMOKELESS POWDER.

SPECIFICATION forming part of Letters Patent No. 541,909, dated July 2, 1895.

Application filed October 23, 1894. Serial No. 526,734. (No specimens.)

To all whom it may concern:

Be it known that we, GARLAND N. WHISTLER, of Fort Wadsworth, and HENRY C. ASPINWALL, of West New Brighton, in the county of Richmond and State of New York, have invented a new and useful Improvement in Explosive Compounds, of which the following is a specification.

Our invention relates to an improvement in explosive compounds particularly adapted for use as a gun powder of the smokeless type and consists of nitroglycerin, gun cotton, barium nitrate, or its equivalent, petrolatum and urea crystals.

In practice, seventy-five parts, by weight, of nitroglycerin and fifty parts, by weight, of gun cotton are mixed with twenty to twenty-five parts, by weight, of a nitrate such, for example as barium nitrate, potassium nitrate, calcium nitrate, strontium nitrate, or ammonium nitrate, and with this mixture is incorporated two parts, by weight, of urea crystals. To the above mixture there is added from one to seven parts, by weight, of a substance known in the art as "petrolatum," the amount of petrolatum used being varied, according to the caliber of the gun or the use for which the explosive is intended—the smaller the

caliber of the gun, the less the amount of petrolatum to be used and the greater the caliber the greater the amount to be used.

We have discovered that petrolatum serves, in connection with the several ingredients which we have hereinabove enumerated, as a very reliable deterrent, enabling us to grade the effect of different sized charges of the explosive upon the ball to be projected with the greatest accuracy.

In making the explosive, to insure a thorough mixing of the several ingredients, acetone may be added in a sufficient quantity to render the mass the consistency of a thick liquid. After the mixing, the acetone may be evaporated in any well known or approved manner.

What we claim is—

An explosive compound, composed of nitroglycerine, gun cotton, a nitrate, such for example as barium nitrate, petrolatum, and urea crystals, combined in the proportionous substantially as set forth.

GARLAND N. WHISTLER.

HENRY C. ASPINWALL.

Witnesses:

IRENE B. DECKER,
EREDK. HAYNES.