Patented Aug. 1, 1939

2,167,679

UNITED STATES PATENT OFFICE

2,167,679

EXPLOSIVE

William H. Rinkenbach and Henry A. Aaronson,
Dover, N. J.

No Drawing. Application August 5, 1938,
Serial No. 223,224

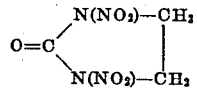
1 Claim. (Cl. 52—5)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

The subject of this invention is an explosive comprising dinitroethyleneurea.

Dinitroethyleneurea is a white crystalline compound which melts at 206° C. with decomposition and is almost non-hygroscopic. It has the formula



The compound is soluble in acetone, but almost insoluble in ether, alcohol, benzene, carbon tetrachloride, and ethylene dichloride, and very slightly soluble in cold water. It is hydrolyzed by boiling water.

Tests have shown that dinitroethyleneurea possesses valuable explosive properties. While it has brisance and ease of explosion by initiators comparable with those of tetryl, it is considerably less sensitive to shock. When heated it undergoes explosion in 5 seconds at 235 to 240° C. as compared with 260° C. for tetryl. It can be used as a booster explosive for the initiation of explosives not susceptible to initiation by means of mercury fulminate. When tested at 120° C. it was found to be of excellent stability, as it liberated but little gas in the course of heating for 40 hours.

Dinitroethyleneurea therefore is suitable for use as an explosive either alone or in admixture with other materials, particularly in the loading of boosters, as a base or booster charge in blasting caps, or as ingredient of priming compositions.

We claim:

An explosive composition comprising dinitroethyleneurea.

WILLIAM H. RINKENBACH.
HENRY A. AARONSON.