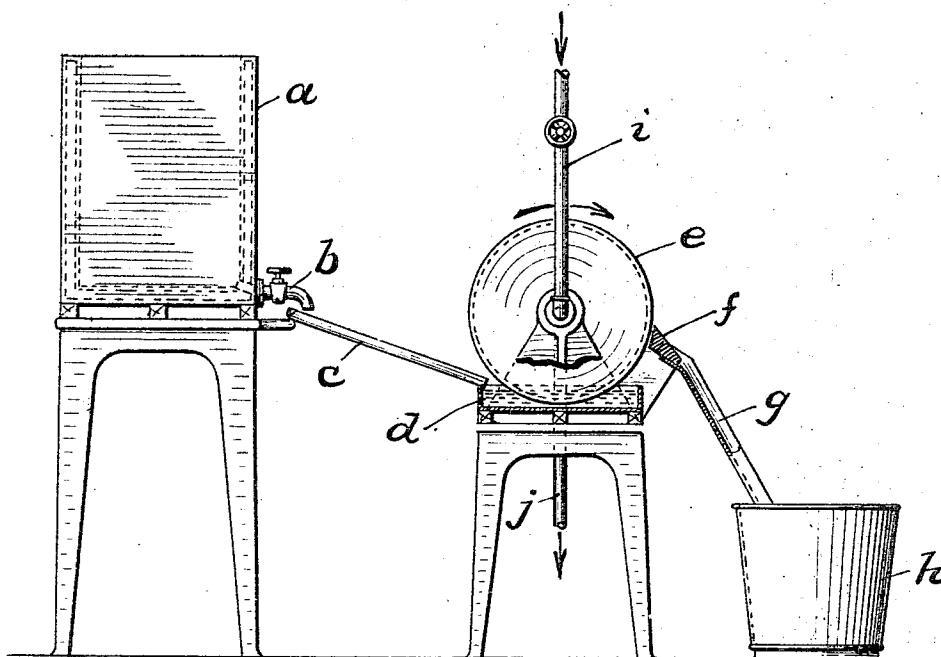


O. REUTER.
 GRANULAR EXPLOSIVE, ESPECIALLY SUITABLE FOR THE PREPARATION OF PRESSED PIECES,
 AND METHOD OF MAKING THE SAME.
 APPLICATION FILED SEPT. 16, 1911.

1,036,906.

Patented Aug. 27, 1912.



WITNESSES:

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UNITED STATES PATENT OFFICE.

OTTO REUTER, OF SCHLEBUSCH-MANFORT, GERMANY, ASSIGNOR TO E. I. DU PONT DE NEMOURS POWDER COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF NEW JERSEY.

GRANULAR EXPLOSIVE, ESPECIALLY SUITABLE FOR THE PREPARATION OF PRESSED PIECES, AND METHOD OF MAKING THE SAME.

1,036,906.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed September 16, 1911. Serial No. 649,746.

To all whom it may concern:

Be it known that I, OTTO REUTER, a subject of the Emperor of Germany, residing at Schlebusch-Manfort, Germany, have invented a new and useful Improvement in Granular Explosives, Especially Suitable for the Preparation of Pressed Pieces, and Methods of Making the Same, of which the following is a full, clear, and exact description.

The object of my invention is to produce a nitro compound explosive that is especially suitable for the preparation of pressed pieces.

My process consists in taking a fused aromatic nitro compound explosive, forming the same in layers and chilling the same, thereby reducing the explosive to a granular or flaky condition, and, in mixture with a crystalline explosive, pressing the same. For this purpose I can use a chilled rotating roller which dips into the fused explosive, for instance, trinitrotoluene. While the roller continues to rotate, the thin layer carried along thereby is chilled and after the roller has revolved, on its axis, a certain distance, the layer is removed by means of a scraper. The layers may then be pressed together. Instead of this the molten explosive may run in a stream upon the roller and after chilling be removed by a scraper.

The drawing is a side elevation of an apparatus by means of which the fused nitro compound may be reduced to said granular or flaky condition, in accordance with my process.

In a jacketed receptacle *a*, heated, for example, by steam, the trinitrotoluene is fused. By means of a cock *b*, the same is passed in regulated quantities through the trough *c* to the container *d*. The rotating roll *e*, which may be cooled from the inside by any suitable means, as for instance, water, dips into the fused trinitrotoluene in the container *d*. There is thus formed on the surface of the roller a thin layer of trinitrotoluene which is rapidly chilled. When the same reaches the scraper *f*, the trinitrotoluene peels off in the shape of fine flakes, and drops, by way of a conveyer *g*, into the receptacle *h*.

i represents a pipe for conveying water to the interior of the roll, and *j* the water outlet pipe.

The fine flakes entering the receptacle are of very solid consistency, are free from air, completely dry and possess the high density of a fused explosive. The flaky trinitrotoluene may then be pressed alone or mixed with a crystalline explosive. The fine flakes are maintained intact during the pressing with the crystalline explosive and are clearly and plainly visible in the finished pressed body, producing therein a mottled appearance. The flakes form, as it were, the exceedingly stable frame work of the pressed body which, as a consequence thereof possesses a high degree of stability and is free from cracks. The crystalline material between the grains of the fused product insures a perfect detonation of the pressed material notwithstanding its high density.

The method described for the preparation of this flaky or granular explosive can be applied with equally satisfactory result in the preparation of explosives for blasting purposes in not strongly pressed but in granular state and in case this is desired in mixtures with crystalline explosives, etc.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. The method of preparing explosives which comprises forming a fused nitro aromatic explosive compound into layers, solidifying the layers by means of chilling, and breaking up the layers to produce a mass of fine flakes.

2. The method of preparing pressed explosives which comprises forming a fused nitro aromatic compound into layers, solidifying the layers by means of chilling, breaking up the layers to produce a mass of fine flakes and subjecting the same to pressure to produce pressed pieces.

3. The method of preparing explosives which comprises forming a fused nitro aromatic explosive compound into layers, solidifying the layers by means of chilling, breaking up the layers, and mixing the mass of fine flakes thus formed with a crystalline explosive.

4. The method of preparing pressed explosives which consists in forming a fused nitro aromatic compound into layers, solidifying the layers by means of chilling, breaking up the layers, mixing the mass of fine flakes thus formed with a crystalline explosive and subjecting the same to pressure.

In testimony of which invention, I have hereunto set my hand, at Cologne, Germany, on this 31st day of August 1911.

OTTO REUTER.

Witnesses:

LOUIS VANDORN,
FRANZ WILLEMS.