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F A Abel

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COMPLETE SPECIFICATION.

An Improvement in the Manufacture of Explosives for Ammunition.

We, FREDERICK AUGUSTUS ABEL, of No. 1 Adam Street Adelphi in the County of Middlesex, Knight, and JAMES DEWAR of No. 1 Scroop Terrace Cambridge in the County of Cambridge, Professor of Chemistry, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

The explosives known as blasting gelatine consisting chiefly of nitroglycerine with nitrocellulose dissolved in it, sometimes accompanied by other ingredients, are well adapted for blasting purposes owing to the disruptive character of their explosion, but they are not suitable as constituents of ammunition, for which explosions of a propulsive rather than of a disruptive character are required. It has been proposed to add to the ingredients of blasting gelatine bodies of an inert kind, such as camphor, in order to lessen the rapidity of the combustion, and thus render the explosive available for propulsive purposes, but if such inert matter added is of a volatile character or otherwise liable to change in quantity or condition, the quality of the explosive of which it forms a part is not sufficiently permanent to be relied on for storage or use. Our invention relates to means of treating blasting gelatine, whether it be simple or compounded with substances which are sometimes added to it such as nitrates of hydrocarbons of a non-volatile character, in such a manner as to render it available for ammunition, which we effect in the following manner:—

Blasting gelatine manufactured in the ordinary way but with a greater percentage of soluble nitrocellulose and with volatile solvent such as acetone or acetic ether sufficient to give it the consistence of a moderately thick jelly, or ordinary blasting gelatine with the addition of soluble nitrocellulose and solvent to bring it to a like condition, is pressed through holes in a plate so as to form a number of wires, which may be of various sizes such as $\frac{1}{8}$ th of an inch diameter more or less.

These wires, which at first are soft and pliable, become toughened by evaporation of the solvent. They are cut into lengths which are packed side by side in the shells of cartridge cases, forming bundles or sheaves of explosible wires, which by their combustion produce great propulsive effects. The rapidity of combustion of such ammunition may be varied within wide limits by varying the size of the gelatine wires of which it consists, a bundle of wires of small diameter burning more rapidly than a bundle of wires of larger diameter.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed we declare that what we claim is:—

The manufacture of explosive for ammunition by pressing blasting gelatine or

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compounds thereof through holes to form wires, cutting these wires into suitable lengths and packing them in cartridge cases, substantially as described.

Dated this 2nd day of April 1889.

ABEL & IMRAY,
Agents for the Applicants. 5