

UNITED STATES PATENT OFFICE.

HENRY DREANY, OF SUDBURY, CANADA.

EXPLOSIVE.

SPECIFICATION forming part of Letters Patent No. 750,175, dated January 19, 1904.

Application filed December 22, 1902. Serial No. 136,272. (No specimens.)

To all whom it may concern:

Be it known that I, HENRY DREANY, manufacturer, of the town of Sudbury, in the district of Nipissing, Province of Ontario, Canada, have invented certain new and useful Improvements in Explosives for all Blasting Purposes, of which the following is a specification.

The object of my invention is to produce an explosive which is uniform in action whether wet or dry and can be operated with safety without giving off noxious fumes and whose action may be readily controlled; and it consists, essentially, of the following ingredients mixed in the manner hereinafter indicated:

15 Nitroglycerin, oil of mirbane, and petrolatum, a by-product of petroleum, are mixed, preferably, in the proportion, by weight, of twelve and one-half per cent. of oil of mirbane, twelve and one-half per cent. of petrolatum, and seventy-five per cent. of nitroglycerin to form the explosive. This compound may be reduced in strength in the usual manner for different classes of work by the addition of nitrate of soda and wood-pulp in varying quantities. The preferable proportions of the reducer may be half as much again in weight of nitrate of soda and one-third in weight of wood-pulp with relation to the weight of nitroglycerin employed. The proportion of the oils of mirbane and petrolatum may be varied so as to form ten per cent. in weight of each to fifteen per cent. of each with eighty and seventy per cent. of nitroglycerin, respectively, in order to suit the character of the rock.

The following mode of mixing gives the best results: The petrolatum and nitroglycerin are first mixed together at a temperature of from 100° to 110° Fahrenheit. Then the oil of mirbane is added at the same temperature, and while the foregoing mixture retains the said temperature it is mixed with the proper quantity of nitrate of soda and wood-pulp for modifying the action of the explosive, as before referred to. By this method of mixing all precipitation or leakage from the compound

is obviated. By mixing the nitroglycerin with the oil of mirbane and petrolatum, as indicated, the nitroglycerin is held in suspension by the oils in such a manner as to render it absolutely safe to handle, and it can only be exploded by a detonating-cap. Heat or fire, concussion, shock, or friction will not by themselves cause an explosion of the compound; but there must be the simultaneous action of concussion, heat, and flame to effect the explosion.

By raising the quantities of oil of mirbane and petrolatum by about one-fourth in weight and reducing the nitroglycerin by about one-tenth in weight and retaining the same amount of nitrate of soda and wood-pulp for reducer I obtain a mixture suitable for overground-work in loose material or easily-broken rock, which explosive may be still further weakened by reducing the quantity of nitroglycerin, oil of mirbane, and petrolatum and increasing the quantity of the reducing agent.

By the addition of suitable quantities of the oil of mirbane and of petrolatum the action of the nitroglycerin can be controlled at the will of the operator and be made suitable for any class of rockwork, and the explosive may be made slow or quick acting, as desired.

This new explosive is uniform in action whether it is wet or dry and whether immersed in water or not. It is absolutely weather-proof and frostproof, does not deteriorate with age, or give off noxious fumes on explosion.

The change in proportions of the ingredients hereinbefore referred to does not in any way affect any of the characteristics of the explosive already set out.

I find that any of the hydrocarbon by-products of the distillation of petroleum may be employed in my compound, yet the petrolatum is preferable, as the lighter by-products are liable to evaporate or else contain impurities.

What I claim as my invention is—

1. An explosive compound consisting of a mixture of from seventy to eighty per cent.

of nitroglycerin, ten to fifteen per cent. of oil of mirbane and from ten to fifteen per cent. of petrolatum.

2. The process of preparing an explosive
5 which consists first in mixing together from seventy to eighty per cent. (by weight) of nitroglycerin and from ten to fifteen per cent. (by weight) of petrolatum at a temperature of from 100° to 110°, Fahrenheit, and second,

mixing from ten to fifteen per cent. (by weight) of oil of mirbane at about the same temperature, substantially as described.

Sudbury, Ontario, December 17, 1902.

HENRY DREANY.

Witnesses:

JESSIE WILKINSON,
A. D. MELDRUM.