

UNITED STATES PATENT OFFICE.

JEAN V. SKOGLUND, OF STOCKHOLM, SWEDEN.

METHOD OF MAKING SMOKELESS POWDER.

SPECIFICATION forming part of Letters Patent No. 542,812, dated July 16, 1895.

Application filed January 25, 1892. Serial No. 419,210. (No specimens.)

To all whom it may concern:

Be it known that I, JEAN VILHELM SKOGLUND, a subject of the King of Sweden and Norway, residing in Stockholm, Sweden, have
5 invented an Improvement in Methods of Making Smokeless Powder, of which the following is a specification.

This powder is especially adapted to small-arms where the projectile offers a comparatively small resistance to the explosion. The
10 ordinary smokeless powders for rifles sometimes hang fire and are too slow in ignition.

The object of this invention is to manufacture a smokeless powder that is readily ignited by a light detonation under a small resistance.
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In my numerous experiments I have employed a compound of picric acid or a picrate, preferably picrate of ammonia, and a nitrate, preferably nitrate of barium, nitrated
20 cotton or cellulose, with or without carbon, and when compounded, as hereinafter set forth, I have found to answer the best purpose. The compound is grained by means of a solvent for the gun-cotton. If only acetone or an ether, as
25 acetic ether, is used for gelatinizing or dissolving the gun-cotton I have found it almost impossible to fully evaporate the solvent, as the exterior of the grains becomes dry and
30 a certain portion of the solvent remains in the interior of such grains. I, however, find that if water is added in a sufficient quantity the exterior of the grain is left sufficiently porous and the solvent is evaporated with the water
35 so as to perfectly dry the grain. Acetic ether dissolves or takes up but little water and not sufficient in quantity for my purposes; but if a vehicle such as either common alcohol or wood spirit or acetone is mixed in the ether
40 the required quantity of water can be added.

I find it advantageous to make use of about ten per cent. of water; but if a less quantity of water is used the grains will be more compact, and vice versa. The proportions of the different ingredients may vary considerably. 45 The following I have, however, found to produce a good powder: fifteen to twenty-five per cent. of picrate of ammonia, seventy to eighty-five per cent. of nitrated cotton or cellulose, and one to three per cent. of charcoal 50 or lampblack. A minute quantity of fatty matter may be added, such as palmitine, when a slower burning powder is required. I find it advantageous to compound this powder in the following manner: The different ingredi- 55 ents are ground and carefully mixed and soaked in the solvent. The mixture is then subjected to pressure, grained, and dried, and the grains may be larger or smaller as desired.

Instead of mixing the picrate and the ni- 60 trate or only the picrate into the mass I sometimes first grain the nitrated cotton and afterward cover the grains with the materials before mentioned.

I claim as my invention— 65

The method herein specified of insuring the proper drying of the grains of powder containing nitrated cellulose, consisting in combining with the solvent, water and a vehicle such as alcohol and dissolving the nitrated 70 cellulose in the liquid and rendering the material porous by the presence of the water as the solvent evaporates substantially as set forth.

Signed by me this 19th day of January, 1892. 75

J. V. SKOGLUND.

Witnesses:

GEO. T. PINCKNEY,
ALICE M. OLIVER.