

United States Patent Office.

GUSTAV ADOLPH NEUMEYER, OF ALTENBURG, SAXE-ALTENBURG, ASSIGNOR TO HIMSELF AND AUGUST KLEIN, OF LEIPZIG, GERMANY.

Letters Patent No. 81,670, dated September 1, 1868; antedated August 25, 1868.

IMPROVEMENT IN THE MANUFACTURE OF GUNPOWDER AND BLASTING-POWDER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GUSTAV ADOLPH NEUMEYER, of Altenburg, in the Duchy of Saxe-Altenburg, Germany, have invented a new and useful Improvement in the Manufacture of Powder for Fire-Arms and for Blasting Purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to understand and make the same.

This invention relates to an improvement in the manufacture of powder for fire-arms, and for blasting purposes, producing an explosive powder more powerful than the ordinary powder now in use, and possessing other advantages, hereinafter stated. The present invention is an improvement on the method of manufacture for which a patent (No. 66,378) was granted, dated July 2, 1867, and consists in employing the same ingredients—saltpetre, sulphur, and carbon—as in the ordinary manufacture of powder, and in variable proportions, but differs in regard to the materials in these respects, to wit:

First. Instead of using the sulphur in sticks, as in the manufacture of the ordinary powder, I use the flowers of sulphur, (*Sulphur depuratum sublimatum*)—a very important alteration.

Second. In the manufacture of the gunpowder, I use brown coal instead of charcoal, and for some kinds, brown coal and charcoal both together. The use of brown coal is a new and a most essential alteration. It was not until I made this discovery that I succeeded in manufacturing a gunpowder exhibiting the desired properties, as hereinafter described. The greater cheapness of this material I consider an additional advantage.

Third. In the manufacture of the blasting-powder, I use brown coal and charcoal both together. I use charcoal of any kind of wood, as pine, birch, cedar, &c., without any choice. The charcoal is burnt out of freshly-cut wood, not out of dried wood kept for years for that purpose, as in the manufacture of the ordinary powder.

My present improvement further consists in the mode of combining the ingredients more intimately and rapidly than by the old methods.

For making blasting-powder, I proceed as follows, to wit:

The ingredients—saltpetre, sulphur, brown coal and charcoal, in various proportions, according to the required strength—are mixed, in a dry state, for five minutes. The mass is then placed on an iron dish, upon which two cast-iron cylinders revolve. To every one hundred (100) pounds of ingredients, fourteen (14) pounds of water are added, and the mass mixed in this manner for one hour and a half. It is then grained, and spread out for drying, and when dried is ready for use.

The ingredients—saltpetre, sulphur, and brown coal, or brown coal and charcoal—are mixed two hours and a half, in the same manner as the blasting-powder, and then grained and dried.

The graining process is as follows:

When the powder has been sufficiently incorporated under the rollers, it is placed in sieves, and on top of the powder is placed a piece of hard wood. The sieves are shaken, and the powder falls through. It is then placed in a drum, in which it is turned one hour and a half, after which it is taken out and dried. If it is desired to glaze it, one-half pound of graphite to every hundred pounds of powder is placed in a drum, and it is again turned for an hour and a half.

My improved powder does not explode when air has access to it, but simply burns out like damp powder. When confined in a gun, however, or in any air-tight vessel, it explodes with the same or even greater force than the powder now used. It requires more heat to ignite it than the ordinary powder, and it is difficult to light it from sparks from steel or flint, and it cannot be ignited by friction or by blows, and is therefore free from all danger in transportation.

The powder leaves less residuum when excluded from the air—when exploded in a gun or blast-hole, for instance—than the ordinary powder.

The recoil in guns is also much less, and, as its action is more gradual, there is much less strain on heavy ordnance, and also less danger of the guns bursting.

My improved powder retains its strength after being wet and redried. It absorbs less moisture, and will keep longer.

It makes less smoke than ordinary powder, and the smoke is lighter—a property of great importance in the mines.

My improved powder can be manufactured, by the methods aforesaid, with complete safety to the operators and to the neighborhood where it is made.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

An explosive powder, for blasting and for fire-arms, when made of the ingredients and in the manner and proportions herein set forth.

The above specification of my invention signed by me, this 19th day of October, 1867, at Leipzig, Kingdom of Saxony.

GUSTAV ADOLPH NEUMEYER. [L. s.]

Witnesses:

FRANZ KERST,

FRANZ DETRICHER.