

UNITED STATES PATENT OFFICE.

GEORGE BENEKE, OF SOUTHPORT, ENGLAND.

COMPOSITION FOR BLASTING-POWDER.

SPECIFICATION forming part of Letters Patent No. 659,842, dated October 16, 1900.

Application filed January 31, 1899. Serial No. 704,015. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE BENEKE, of Hazelhurst, Southport, in the county of Lancaster, England, have invented certain new and useful Improvements in the Manufacture of Blasting-Powders, of which the following is a specification.

This invention relates to the manufacture of blasting-powders, and is based more particularly on the employment of a type of specially-prepared carbon carrier, as hereinafter described, whereby greatly-improved effects are obtained. The substances chiefly used in the manufacture of the said blasting-powders are nitrate of soda or other nitrates, with or without nitrate of potash and sulfur, together with a specially-prepared carbon carrier, as hereinafter described.

The main part of this invention consists in the special treatment of the carbon carrier, which can be made from one or more of the following: asphaltum, pitch, resin, lac, varnish, oils, naphthalene, anthracene, phenanthrene, all kinds of wax, and the like. In carrying out my preliminary treatment of the carbon carrier I make use of an oxidizing agent with or without additional carbon, such as charcoal, coke, or the like.

The special treatment of the carbon carrier has the additional advantage of diminishing the dangerous sensibility and frequent unstableness of the oxidizing agents, and my invention renders them comparatively safe against friction and percussion, while at the same time this treatment largely prevents crystallizing out and consequent danger of explosion from a variety of causes. This action of rendering the oxidizing agent more stable is independent of the added carbon.

In my experiments on flame-reducing substances and nitrate-of-ammonium compounds I have used melted resin for the purpose of waterproofing the flame-reducing salts; but I have now discovered that I can use the melted resin (and other substances above indicated) for the purpose of rendering the oxidizing agent more stable, and I am enabled by my discovery to make safe and reliable explosives from nitrate of soda and nitrate of potash and other nitrates.

Various explosives have been invented from time to time, consisting principally of salt-

peter or nitrate of soda, sulfur, and other ingredients simultaneously admixed with a plastic substance, which will bind the powder together into a hard mass under pressure. These explosives, however, have this very serious defect that their temperature of ignition is far too high above that of blasting-gunpowders, ignition and detonation by means of the fuse become very difficult, and the result is frequent misfire in the shot-hole, with its attendant dangers.

I have discovered that a good, reliable, and very cheap substitute for blasting-gunpowder may be produced which is of equal and even greater strength than the latter and whereby this serious defect is remedied under the following process of manufacture:

Example: In order to carry out my invention, I first proceed to make a specially-prepared carrier of carbon. By way of example I melt (by heating) or dissolve (by means of a suitable solvent) from ten to sixteen parts of pitch or resin or other suitable carbon carrier until it is in a fluid state and stir into it one to two and one-half parts of finely-powdered bichromate of potash and about five parts of finely-powdered charcoal or other finely-powdered carbon. The mixture is constantly stirred until the ingredients have been thoroughly mixed. The mixture is then cooled or dried and ground to an extremely-fine powder, or the mixture may be used in a fluid or viscous state, as may be found most convenient. The incorporation of the oxidizing agent and charcoal or other finely-powdered carbon into the carbon carrier is of very great importance and renders the mixture more easily combustible and not so inert; but, as before explained, the added carbon has little or no effect in rendering the oxidizing agent stable. To about eighteen to twenty-three parts of this powder or liquid mass I add sixty-five to seventy parts of dry and finely-powdered nitrate of soda and mix them well together and then add five to ten parts of nitrate of potash and ten to twelve parts of sulfur previously ground together into a fine powder. The mixing of the ingredients and subsequent pressing of the powder should then be proceeded with. Before pressing the powder should be heated to a temperature which will slightly soften the carbon carrier,

or it may be pressed cold, according to the carbon carrier selected. It is then granulated.

I do not confine myself to the proportions above indicated and may vary them according to requirements.

The specially-prepared carbon carrier made with or without the added carbon may also be employed with nitrate of potash and sulfur in lieu of nitrate of soda and sulfur, as above described, in order to form explosive mixtures capable of being employed in blasting operations.

The specially-prepared carbon carrier in addition to rendering the oxidizing agent more stable also insures the better ignition and detonation of the explosive compounds herein referred to, of which it forms an ingredient.

What I claim, and desire to secure by Letters Patent, is—

1. As a new article of manufacture for use

as an ingredient in the subsequent manufacture of nitrate explosives, the carbon carrier composed of resin, a chromium oxidizing agent and carbon, all incorporated coherently together as and for the purposes set forth.

2. As a new article of manufacture for use as an ingredient in the subsequent manufacture of nitrate explosives, the carbon carrier composed of ten to sixteen parts resin, one to two and one-half parts chromium oxidizing agent and five parts carbon all incorporated coherently together, as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE BENEKÉ.

Witnesses:

WM. G. MURRAY,

S. MCCREADY.