

UNITED STATES PATENT OFFICE.

MAX BIELEFELDT, OF WITTENBERG, GERMANY.

SAFETY EXPLOSIVE.

SPECIFICATION forming part of Letters Patent No. 565,593, dated August 11, 1896.

Application filed November 15, 1895. Serial No. 569,078. (No specimens.) Patented in Belgium July 26, 1895, No. 116,710.

To all whom it may concern:

Be it known that I, MAX BIELEFELDT, doctor of philosophy, a subject of the King of Prussia, German Emperor, residing at Wittenberg, Saxony, Germany, have invented a certain new and useful Safety Explosive, (for which I have obtained a patent in Belgium, No. 116,710, dated July 26, 1895;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the manufacture of a safety explosive, that is to say, an explosive which when used in mines does not inflame combustible gas or coal-dust. For this purpose ninety to ninety-two parts by weight of ammonium nitrate, five parts of resin, and three to five parts of a chromium compound, such as chromous hydroxid, all finely pulverized and thoroughly mixed, are heated sufficiently to soften the resin, but not to render it quite liquid. While the warming of the mixture goes on it is constantly stirred and kneaded, so as to effect thorough incorporation of the ingredients. The product is then allowed to cool and is granulated in any known manner.

The proportions of the ingredients may be somewhat varied according as more or less

safety with corresponding less or greater explosive power is desired. The proportions given above may however be generally adopted.

When explosion takes place, the oxids or other compounds of chromium which are formed have the effect of entirely suppressing flame, even when highly-combustible materials are present. Thus, for instance, when a blasting-cartridge is fired, even in the greased or oiled wrapper which is usually employed to prevent access of moisture, no flame is communicated to the gas or coal-dust which may be present. Consequently the explosive according to this invention can be used with safety in the most dangerous workings.

What I claim is—

A safety explosive formed of from ninety to ninety-two parts of nitrate of ammonia, five parts of resin, and from three to five parts of a chromium compound, such as chromous hydroxid.

In testimony whereof I affix my signature in presence of two witnesses.

MAX BIELEFELDT.

Witnesses:

JOHN B. JACKSON,
MAX WAGNER.