

# UNITED STATES PATENT OFFICE.

MAX BIELEFELDT, OF BERLIN, GERMANY.

## PRIMING COMPOSITION.

SPECIFICATION forming part of Letters Patent No. 751,605, dated February 9, 1904.

Application filed November 21, 1902. Serial No. 132,328. (No specimens.)

*To all whom it may concern:*

Be it known that I, MAX BIELEFELDT, doctor of philosophy, a subject of the German Emperor, residing at Berlin, Germany, (and whose post-office address is 129 and 130 Potsdamerstrasse, Berlin, Germany,) have invented certain new and useful Improvements in Priming Compositions for Detonators and Percussion-Caps, (for which I have applied for a patent in Germany on the 20th day of October, 1902, and in Italy on the 30th day of October, 1902,) of which the following is a specification.

Numerous attempts have been made for the purpose of replacing the expensive fulminate of mercury as a priming substance for detonators and percussion-caps by a cheaper but equally efficient material.

According to recent experiments a mixture of trinitro-naphthalene with potassium chlorate, dinitro-naphthol-sulfonate of diamidophenol, or another organic or inorganic salt of this acid and sulfo-cyanid of mercury makes an excellent priming composition which in comparison with fulminate of mercury has not only the advantage of cheapness, but also the fact that it may be produced and worked up without danger and that it enables much larger detonators to be used than heretofore. The use of larger detonators, however, makes it possible or practicable to employ explosive compositions which could not or only with great difficulty be caused to explode by ordinary fulminate-of-mercury caps.

A percussion or detonating cap filled with the improved priming composition does not require the addition of a fulminate-of-mercury cap in order to exert its full power, but will directly explode dynamite, picric acid, and other high explosives. The effect is enhanced if the priming composition is inclosed in a brass case having strong walls and no bottom. The tougher and stronger the metal of the case within ordinary limits the better will be the effect.

It is advantageous to add to the priming charge in the cap a small quantity of the same, (or a chemically similar explosive as that which is to be detonated by the cap,) this addition being made by placing the said explosive in

the front end of the cap—that is to say, that end which is introduced into the explosive cartridge first—so that the new priming composition of the cap will first ignite the small portion of the contents of the cartridge which is inclosed in the strong metal case of the cap, and the explosion of the cap will thereby be communicated more energetically to the main part of the cartridge. Such an intermediate layer, which transmits the explosive of the priming composition to the cartridge and is chemically very similar to the principal charge of the cartridge, insures an easy and vigorous detonation of nearly all high explosives hitherto known, and it renders the use of substitutes for fulminate of mercury more practicable.

The relative quantities of trinitro-naphthalene, dinitro-naphthol-sulfonate, mercury-sulfo-cyanid, and potassium chlorate may vary.

A mixture containing twenty-five per cent. of trinitro-naphthalene, ten per cent. of dinitro-naphthol-sulfonate of diamidophenol, thirty per cent. of sulfo-cyanid of mercury, and thirty-five per cent. of potassium chlorate has been found specially useful.

What I claim is—

1. A priming composition for detonators and percussion-caps composed of a mixture of trinitro-naphthalene, dinitro-naphthol-sulfonate, sulfo-cyanid of mercury and potassium chlorate, substantially as described.

2. A priming composition for detonators and percussion-caps composed of a mixture of about twenty-five per cent. of trinitro-naphthalene, ten per cent. of dinitro-naphthol-sulfonate of diamidophenol, thirty per cent. of sulfo-cyanid of mercury and thirty-five per cent. of potassium chlorate, substantially as described.

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

MAX BIELEFELDT.

Witnesses:

FRL. HERMANNI.

A. KREFT.