

UNITED STATES PATENT OFFICE.

JAMES GALE, JR., OF DEVONSHIRE TERRACE, ENGLAND.

IMPROVED MODE OF KEEPING GUNPOWDER.

Specification forming part of Letters Patent No. 50,313, dated October 3, 1865.

To all whom it may concern:

Be it known that I, JAMES GALE, Jr., of Devonshire Terrace, Plymouth, England, electrician, a subject of the Queen of Great Britain, have invented new and useful Improvements in Preparing and Treating Gunpowder; and I, the said JAMES GALE, do hereby declare the nature of the said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof—that is to say:

This invention has for its object improvements in preparing and treating gunpowder with a view to render it non-explosive when in store or when being transported from place to place, and then to restore the gunpowder to its original condition. For these purposes gunpowder is mixed with a dry, fine, inexplsive powder, finer than the finest parts of the gunpowder. The mixed or combined mass is thus rendered inexplsive, and in this state the mass is stored in casks or other vessels or holders, and so long as the gunpowder remains in combination or admixture with the dry, inexplsive, fine powder it will, as a mass, be incapable of explosion.

When the gunpowder is required for use it is separated from the dry, fine powder by sifting or winnowing. The dry, fine powder thus separated from the gunpowder may be again and again used for the same purpose. Various dry materials in the state of very fine powder may be thus used, taking care that it is reduced to a finer state than the grains of the gunpowder; but it is preferred to employ glass-powder, or ivory or bone black mixed with glass-powder, or either may be used alone for the purpose when reduced, as nearly as may be, to an impalpable powder; or other dry, fine powder may be used, taking care that it is not capable of readily taking up moisture when exposed to the air.

The relative proportions of the fine, dry powder and of the gunpowder will vary to some extent, depending on the sizes of the grains of the gunpowder. It is, however, found that

about three parts, by weight, of the dry, fine powder to one part, by weight, of gunpowder answers well in practice.

I would state that I am aware that glass-powder has been used in the manufacture of gunpowder in small quantities, but not in such manner as to prevent its exploding. On the contrary, the compounding of glass with gunpowder has been such as to remain in combination when used and exploded.

In carrying out this invention it is important that the powder mixed with the gunpowder should be very dry and of a character not liable to imbibe or take up moisture, and it is further desirable that such material should be reduced to a very fine powder in order that the grains of gunpowder may, when subjected to the action of a sieve or to winnowing, or to both, be readily separated from the dry and finer powder mixed therewith.

In preparing gunpowder to be stored, about three parts of the dry, fine powder, which it is preferred should be very fine powder of glass alone or glass powder mixed with a small quantity of ivory-black—say about one-seventh—the dry, fine powder is to be intimately mixed with the gunpowder. This mixture is then placed in casks or other vessels or holders, and while so mixed the mass will not explode, and in this condition the gunpowder may be safely transported from place to place or kept in stores, and when for use the gunpowder will readily be separated from the dry powder by sieving or winnowing, or by the joint action of sieving and winnowing.

What I claim is—

The combining fine, dry, inexplsive powder with gunpowder, and in separating the fine, dry powder from the gunpowder when it is required for use, substantially as herein described.

JAMES GALE, JR.

Witnesses:

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