A. E. MILTIMORE & C. A. L. TOTTEN.

COMPENSATING POWDER.

No. 186,211. Patented Jan. 16, 1877.

Fig. 1.

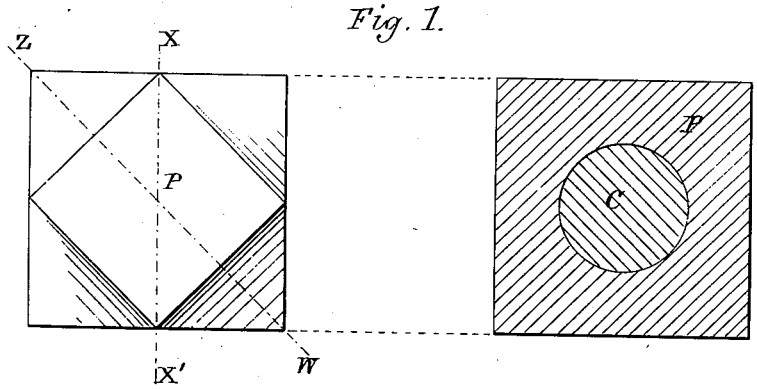
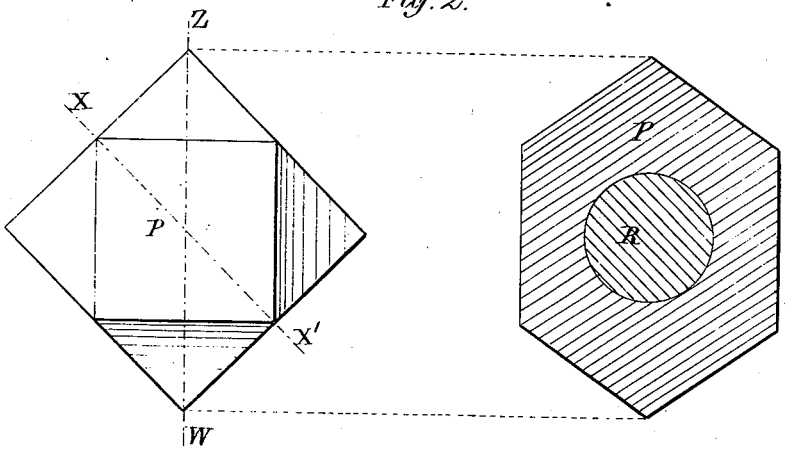


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

ALONZO E. MILTIMORE, OF JANESVILLE, WISCONSIN, AND CHARLES A. L. TOTTEN, OF NEW LONDON, CONNECTICUT.

IMPROVEMENT IN COMPENSATING-POWDER.

Specification forming part of Letters Patent No. **186,211**, dated January 16, 1877; application filed January 13, 1875.

To all whom it may concern:

Be it known that we, ALONZO E. MILTIMORE, of Janesville, county of Rock, State of Wisconsin, and CHARLES A. L. TOTTEN, of New London, New London county, State of Connecticut, have invented certain new Improvements in Compensating-Powder, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

Our invention consists of a compensating-powder composition forming distinct grains or masses homogeneous in themselves, and constructed of concentric coatings or layers of different explosive substances; said substances relatively interlaid, so that the expansion and the projecting force of the several gases will increase in intensity as combustion approaches the center of each of said grains or masses.

In this way the same grain may be a combination of gun-cotton, gunpowder, dynamite, dualine, nitro-glycerine compounds, and other explosives, any or all being used in the same grain.

For instance, by forming around spheres, or solids in any shape, gun-cotton, other concentric coats, or similar coats or layers of gunpowder, we would have one form of compensating-powder, the grains in this case being built up of but two substances.

The action of such grains in a charge will be as follows: For instance, in a gun, the gunpowder is first ignited and converted into gas. The projectile, due to the expansion of this gas moves, forward, but as it moves the space behind is increased, and the tension of the gas thereby diminished. The gun-cotton, however, is now ignited, the grains being consumed down thereto, and by its explosion brings the gas back to the proper degree of tension, thus compensating for the increase of space.

Reference may be had to the accompanying drawings. Figure 1 shows the cross-section of a built-up grain. The form of the grain is that of a cube whose angles are truncated, the interior position thereof being a sphere. The outer portion P is composed of gunpowder, while the inner portion C is of gun-cotton. Fig. 2 shows a similar grain, the outer part, B, being compressed or cake powder, the inner one of more rapidly burning rifle or musket powder, R.

The forms of these grains and of their component parts are immaterial, and will be altered to suit occasion. The grains may be of any explosive substances, built up in any order or method. The grains may be constructed of size suitable for loading metallic cartridges.

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

A compensating-powder, as herein described, the grains of which are made up of layers of explosive substances, said substances being respectively of varying force and expansive intensity, substantially as and for the purpose described.

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Witnesses:
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