

# UNITED STATES PATENT OFFICE.

CHARLES M. WETHERILL, OF LAFAYETTE, INDIANA, ASSIGNOR TO ISAAC R. DILLER, OF SPRINGFIELD, ILLINOIS.

## IMPROVEMENT IN GUNPOWDER, &c.

Specification forming part of Letters Patent No. 42,056, dated March 22, 1864.

*To all whom it may concern:*

Be it known that I, CHARLES M. WETHERILL, Ph. D., M. D., analytical chemist, of the city of Lafayette, county of Tippecanoe, State of Indiana, have invented a new and useful Mode of Preparing Gunpowder; and I do hereby declare that the following is a description of the materials and method of manufacturing the same.

I claim the invention of a new explosive or deflagrating material suitable for all kinds of fire-arms, rockets, torpedoes, mines, blasting, and for all the purposes to which the different kinds of ordinary gunpowder are applicable.

The aforesaid new powder is composed of chlorate of potassa or any other chlorate or an equivalent oxygen compound of chlorine with any suitable base, intimately mixed, either dry or in solution, and subsequent evaporation by means of the proper amount of water or other solvent with all or any of the following bodies, to wit: finely-divided wood-bark cellulose or their equivalents, mixed with carbonaceous matters very rich in carbon—such as anthracite or bituminous coal, coke, charcoal, asphaltum, lamp-black, plumbago, or their equivalents—further, with deutoxide of manganese or an equivalent body facilitating the escape of oxygen from the chlorates. The solutions and evaporations may be performed by naked fire; but, as that is very dangerous, I prefer the application of heat by the use of steam or any hot vapors, gases, or liquids, circulating or condensing in the apparatus in such manner as to effect the required purpose.

I am aware that mixtures of several of the above-mentioned substances have been at various times proposed for gunpowder. I do

not claim the invention of any such mixtures; but

What I do claim is—

1. The invention of a mixture of an oxygen compound of chlorine capable of giving off its oxygen by heat with a carbonaceous body or bodies, in such proportion that the oxygen given off by the former shall be to the total carbon contained in the latter as eight parts, by weight, to six parts, with a view of forming carbonic oxide, or as sixteen parts, by weight, to six parts, by weight, with a view of forming carbonic acid, or in some intermediate proportion to form a mixture of the two aforesaid gases.

2. By the proper selection of the kind of carbonaceous matter or by the addition of the peroxide of manganese or its equivalent to obtain at pleasure a quicker or slower burning powder.

3. By the addition of a sufficient amount of dextrine or other equivalent gum, and with or without the subsequent operations of pounding or pressing and granulating, the manufacture of a grained powder having valuable properties.

4. By the use of oil of vitriol or any body acting similarly upon the aforesaid chlorine compound, and brought in contact with it by appropriate devices at the proper moment to effect the explosion of the powder in shells at or soon after striking an object, or by similar devices, the explosion of mines, torpedoes, or the like, under or against an enemy.

CHARLES M. WETHERILL.

Witnesses:

ISAAC R. DILLER,  
DAN. ROWLAND.