

UNITED STATES PATENT OFFICE.

FRANCIS A. HALSEY, OF SAN RAFAEL, CALIFORNIA, ASSIGNOR TO THE
ECONOMIC SMOKELESS POWDER COMPANY, OF ILLINOIS.

GUNPOWDER.

SPECIFICATION forming part of Letters Patent No. 625,499, dated May 23, 1899.

Application filed December 3, 1898. Serial No. 698,140. (No specimens.)

To all whom it may concern:

Be it known that I, FRANCIS A. HALSEY, a citizen of the United States, residing at San Rafael, county of Marin, State of California, have invented a new and useful Improvement in Smokeless Powders, of which the following is a specification.

The object of my invention is to provide a powder, chiefly for use in firearms, which will be smokeless, comparatively safe to manufacture and use with a high-explosive power on ignition, and which will not deteriorate on exposure.

It consists of a compound made up of the following elements combined in about the proportions specified: picrate of ammonia, forty-seven per cent.; bichromate of potassium, twenty-three per cent.; nitrate of barium, thirty per cent. These constituents are mixed together in the usual manner, being first finely pulverized, the picrate and potassium being mixed together first and then with the barium nitrate, and all are then intimately incorporated by passing through a

machine or wheel-mill, in which they are stirred and rolled until thoroughly homogeneous, the process being assisted by the use of a small quantity of water. The resultant composition is at this stage in the form of a pasty mass, which is then granulated by reducing the pressure of the rolls and passing it through a sieve and is then dried.

It is obvious that the exact proportions above specified may be slightly varied and the chemical equivalents of certain of the constituents might be substituted without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent, is—

The herein-described powder consisting of picrate of ammonia, bichromate of potassium, and nitrate of barium combined in about the proportions specified.

FRANCIS A. HALSEY.

Witnesses:

ED. H. FORD,
WM. C. SAVAGE.