UNITED STATES PATENT OFFICE.

PAUL BUTLER, OF LOWELL, MASSACHUSETTS.

GUNPOWDER.

SPECIFICATION forming part of Letters Patent No. 418,552, dated December 31, 1889.

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To all whom it may concern:

Be it known that I, PAUL BUTLER, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Gunpowder, of which the following is a specification.

My invention relates to powder for use in fire-arms; and it consists in the manufacture of such powder from fulminate of mercury by the mixture therewith of soapstone, substantially as hereinafter described and claimed.

I am aware that various substances have been mixed with explosive compounds of that kind to enable them to be used to better advantage in fire-arms; but all of such substances heretofore used for that purpose fail to give the qualities needed for a powder for fire-arms, especially what is known as powder for sporting and target practice. Many such substances, while suitable for blasting purposes, are gritty or filled with sharp-cornered or earthy particles, and liable to cut and foul the gun-barrel. I have discovered that powdered soapstone can be mixed with such explosives in proper proportions by the employment of a binding medium, and a strong and effective gunpowder be thus made which takes less space in the chamber of the fire-arm, makes less noise in firing, gives comparatively no smoke from the discharge, does not cut or foul the barrel, and, what is most important of all, requires no lubricant in the barrel of the gun to keep it clean in use, while being perfectly safe to use, as the powder does not decompose in keeping the cartridge-shells loaded, so as to detonate and burst the gun.

The soapstone may be mixed with the explosive material to form the gunpowder in various proportions and with various kinds of explosives of the variety I have indicated and give good results, and with different binding mediums; but I will state two equivalent methods of mixing it with such an explosive to form gunpowder, which I have practiced with the results above mentioned and tested extensively in fire-arms for parlor guns and target practice.

To form my gunpowder from the soapstone I take two and one-half pounds of wet fulminate of mercury and mix the same thoroughly with one pound of dry pulverized soapstone. This mixing should be done immediately before the gums forming the binding medium are added, and if the mixture is allowed to stand for any considerable length of time it should invariably be remixed before such gums are added, to avoid the danger of the fulminate and soapstone becoming separated. I then take one gill of "gums," so called, composed of one-half ounce of gum-tragacanth and one ounce of gum-arabic dissolved in water and mixed well together, and mix the same with the powdered soapstone and fulminate, and when sufficiently and properly intermixed (and dried, if desired) the same forms a good and efficient gunpowder for use in fire-arms.

Another equivalent form of using the powdered soapstone, and the one which I prefer, is as follows: Take eighteen parts of wet fulminate of mercury and mix with five parts of dry pulverized soapstone. Then immediately take two parts of black gunpowder and form a paste of it by adding a proper quantity of water, and mix the same with the mercury and powdered soapstone in the ordinary manner, when a good powder for fire-arms will be produced possessing the above-mentioned qualities. The black gunpowder in this mixture performs the same office of a binding medium as the gums in the preceding one in rendering the compound fixed and stable for any length of time, and also adds to its bulk, which renders it more convenient to load into cartridge-shells. This proportion of ingredients is especially adapted for use in small cartridges intended for use in "parlor-guns," so called. If the powder is to be used in larger cartridges, it may be found to be better to mix a larger proportion of the powdered soapstone with the fulminate, according to the increased size of the charge to be used and the quickness of action desired for the powder; but the best proportions can be easily determined by experiment.

The above description will enable a skilled workman to produce my soapstone powder with proper care. From its lubricating qualities the soapstone will not only be found to give superior qualities to the gunpowder when made, but will also be safer to mix with

the explosive used in manufacturing the powder, being also less liable than other substances to cause the fulminate to explode or detonate, from the absence of all gritty particles in it and on account of the absorptive qualities of the soapstone.

In using my soapstone powder I take a quantity sufficient to fill about one-fourth of the space occupied in the cartridge-shell by common black gunpowder for the same fire-arm, and charge the shell in the usual manner.

Instead of powdered soapstone, other forms of talc possessing the same lubricating qualities may be used, as I do not confine myself to soapstone alone, the essential feature of my improvement being the lubrication of the barrel by it.

What I claim as new and of my invention is—

1. A gunpowder for fire-arms, composed of fulminate of mercury, pulverized soapstone, and a suitable binding material, substantially as described.

2. A gunpowder for fire-arms, composed of fulminate of mercury, pulverized soapstone, and black gunpowder as a binding material, substantially as described.

PAUL BUTLER.

Witnesses:
DAVID HALL RICE,
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