

UNITED STATES PATENT OFFICE.

J. HENRY FERGUSON, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN CARTRIDGES.

Specification forming part of Letters Patent No. 24,548, dated June 28, 1859.

To all whom it may concern :

Be it known that I, J. HENRY FERGUSON, of the city and county of Baltimore, State of Maryland, have invented certain new and useful Improvement in Cartridges, of which the following is a full, clear, and exact description of the preparation and construction of the same.

The object of my invention is the production of a water-proof and inflammable cartridge, adapted more especially to small-arms.

The water-proof cartridge, made either of metal or of a textile material rendered water-proof, is well known in the arts, as is also the inflammable non-water-proof cartridge, but no cartridge combining both of these properties and the advantages of both descriptions has within my knowledge ever before been attempted.

Both descriptions of cartridges have their especial merits and defects. The metallic water-proof cartridge is objectionable from its expense and weight, from the difficulty of removing it from the gun when imperfect, or when the gun becomes foul from firing, and also from its inadaptability to any other description of gun than that for which it is made, and from the necessity of always loading the gun at the breech. The textile water-proof cartridge is dangerous from the liability of a portion of the cartridge adhering to the barrel and retaining fire. The inflammable cartridge, being constructed of a porous textile material, soon absorbs moisture, so that in a short time it becomes worthless and unfit for service.

A cartridge combining the merits of both descriptions, without the great defects incident to either, has long been a desideratum, and to effect this is the object of my improvement. The methods by which I propose to effect this object is by the application of a chemically-prepared inflammable and water-proof paper for the purpose of making the cartridge.

The process by which this paper is prepared is as follows: First, the paper is treated with a compound consisting of eighteen parts by weight of nitrate of potassa, pure, and seventeen parts of sulphuric acid, pure, after which it is washed, to free it from the soluble salts and excess of acid, and then dried between

sheets of blotting-paper. This preparation renders the paper highly inflammable, but not at all explosive, and at the same time gives to it sufficient consistency, so that it is nearly water-proof. In order to render it perfectly water-proof, a light coat of shellac varnish is applied to one side only. As the prepared paper possesses slight absorbing qualities, the varnish does not penetrate it so as to affect its combustible qualities, and when ignited it is instantaneously and perfectly consumed.

With the inflammable and water-proof paper thus prepared the cartridge is made in the usual manner, by winding the paper around a form of the proper size and shape, closing it at one end over a thin wad, and then cementing the edges with the water-proof varnish. The cartridge is then filled with powder and attached to the ball, so as to form a perfectly water-tight joint, by entering the neck of the ball in the open end, winding it so as to force the paper into one of the grooves, and then varnishing the joint.

This description of cartridge, it will be seen, possesses most of the advantages incident to the water-proof and also to the inflammable and the common paper-cartridges, without their especial defects. Like the former, it is not affected by wet, moisture, or climate. From its being inflammable, greater force is given to the charge, from enveloping it in flame, thus causing the ignition of all the powder contained in the cartridge.

It also possesses the portability of the common cartridge, is equally well adapted to load the gun either at the breech or the muzzle, and the expense but slightly exceeds that of the common paper-cartridge.

I do not confine myself to the exact proportions of the ingredients as described for treating the paper of which the cartridge is made to render it inflammable, as these proportions may be varied, as required, to give the paper greater or less inflammability; neither do I confine myself to these materials alone for effecting this object, as any other material or materials may be used which will combine with the fibers of the paper or other textile material and render it combustible, and at the same time prevent its absorbing the water-proof varnish to such degree that its inflam-

mability will be affected; neither do I confine myself to the application of shellac varnish to render the paper water-proof, as any other varnish which will readily burn and leave a light residuum may be used in its place.

Having thus described my improvement in cartridges, what I claim as new, and desire to secure by Letters Patent, is—

A water-proof and inflammable cartridge made substantially as described.

In testimony whereof I have subscribed my name.

J. HENRY FERGUSON.

Witnesses:

F. SOUTHGATE SMITH,
JOHN S. HOLLINGSHEAD.