

# UNITED STATES PATENT OFFICE

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## CARTRIDGE AND METHOD OF WATERPROOFING THE SAME.

SPECIFICATION forming part of Letters Patent No. 302,819, dated July 29, 1884.

Application filed November 28, 1883. (No specimens.) Patented in England June 29, 1883, No. 3,238.

### *To all whom it may concern:*

Be it known that I, PAUL BARBE, engineer, a citizen of the Republic of France, and residing in Paris, France, have invented  
5 Improvements in the Manufacture of Cartridges, of which the following is a specification.

The difficulty of obtaining cartridges impermeable to humidity, and consequently of  
10 avoiding the deterioration that this humidity causes to the explosive, has suggested a mode of preparing a water-tight cartridge, for which a patent dated March 13, 1883, No. 273,934, has been obtained. In the description given  
15 of the process in the former patent only explosives of a pasty or solid nature are referred to. It has been found that explosives in a pulverulent state may be prepared in a similar manner; and the object of the present invention is to produce a water-tight cartridge,  
20 the explosive being in a pulverulent or granulated condition.

The mode of operating is as follows: The pulverulent explosive is first compressed in a  
25 cylinder of paper, which serves as an envelope. This paper may be varnished or not, as desired, or may be plunged or not, as desired, into paraffine before use. The extremities of the cylinder of explosive may each be  
30 covered or not with a wad before the folding in of the ends of the paper tube. The cartridge is then plunged into a bath composed as indicated in the patent before mentioned, and is left therein for a sufficiently long time.

35 It may be mentioned that the bath is formed of a mixture of paraffine and ozocerite, to which (according to the temperature it is desired to attain, the composition of the explosive, or any other circumstances) is added wax, lin-

seed-oil, resin, colophony, pitch, tar, essence  
40 of turpentine, or any other suitable fatty body, together or separate. The cartridge, when withdrawn from the bath, is rolled hot in a second paper envelope previously prepared with the mixture composing the bath.  
45 This second envelope is as thick as may be desired, and the extremities of the tube are folded down in the ordinary manner. The heat of the cartridge softens and melts the coating of the second envelope, and when the  
50 cooling takes place a complete seal is produced between the envelopes and the surface of the explosive.

Having now described my invention, and explained the manner of carrying the same  
55 into effect, I claim—

1. The mode herein described of preparing water-proof cartridges, said mode consisting in first compressing pulverulent explosive material in an envelope, immersing this in a  
60 melted waterproofing composition, and then wrapping the coated article while hot in an envelope which has been previously saturated with a waterproofing composition, all substantially as set forth.

2. As a new article, a cartridge having a  
65 pulverulent explosive material inclosed in a paper cylinder, both this paper-covered explosive and an outer paper envelope being coated with a composition of paraffine and  
70 ozocerite, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PAUL BARBE.

Witnesses:

ALFRED CAINY,  
ROBT. M. HOOPER.