

(No Model.)

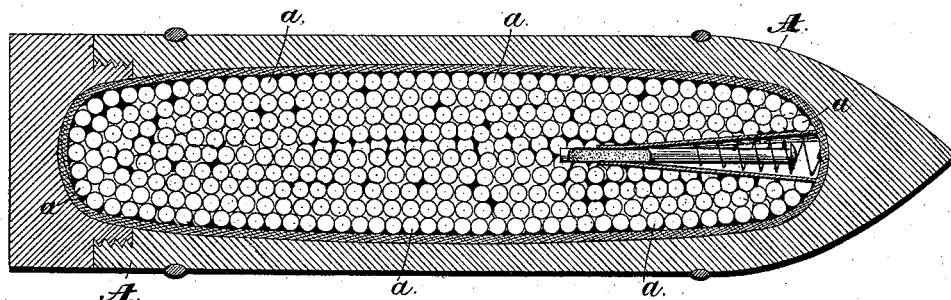
J. W. GRAYDON.

METHOD OF PREPARING EXPLOSIVES FOR USE.

No. 382,228.

Patented May 1, 1888.

*Fig. 1.*



*Fig. 2.*



*Witnesses:*  
*Jack C. Hutchinson*  
*Henry C. Hazard*

*Inventor.*  
*James W. Graydon*  
*by Prindle & Russell*  
*his attorney.*

# UNITED STATES PATENT OFFICE.

JAMES W. GRAYDON, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR,  
BY MESNE ASSIGNMENTS, TO THE GRAYDON DYNAMITE PROJECTILE  
CARTRIDGE AND HIGH EXPLOSIVE COMPANY, OF SAME PLACE.

## METHOD OF PREPARING EXPLOSIVES FOR USE.

SPECIFICATION forming part of Letters Patent No. 382,228, dated May 1, 1888.

Application filed May 7, 1887. Renewed February 20, 1888. Serial No. 261,652. (No specimens.)

*To all whom it may concern:*

Be it known that I, JAMES W. GRAYDON, of Washington city, in the District of Columbia, have invented certain new and useful Improvements in Methods of Preparing Explosives for Use; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows my invention as applied to a charge of explosives for an explosive shell, and Fig. 2 a detail enlarged view of a portion of the charge prepared in accordance with my invention.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide certain improvements in the preparation of explosives; and to this end my invention consists in the method of preparing the explosive, as hereinafter specified.

Where, as heretofore, dynamite and other high explosives have been handled and used in a mass or lump, there has been great danger of explosion, as under certain conditions and from shock the explosive was liable to be put into a highly sensitive condition. In the case of dynamite and other nitro-glycerine compounds, where the nitro-glycerine is absorbed and held by absorbent material, the glycerine is liable, under the influence of pressure from a blow or shock, or when the dynamite is stored for a long time, to concentrate out of the absorbent. This leaves the explosive in a dangerous and too highly sensitive state, for, as is well known, nitro-glycerine in its liquid form is, or is liable to become, quite sensitive by shocks.

It is the purpose of my present invention to effectually prevent this dangerous change in high explosives caused by the concentration of their actively-explosive component parts.

In carrying out my invention I separate the mass of explosive into small portions and inclose each portion in a wrapper or envelope adapted to hold its contents inclosed separate from the rest of the explosive.

I have found by experiment, and have proved by long-continued demonstrations, that by inclosing any of the high explosives—as, for in-

stance, dynamite, helinite, and roburite—in small packages and hermetically sealing each package, so that in the ordinary course of handling or transporting the explosives the packages shall not become broken, the explosives become harmless and safe to handle. As long as the packages remain unbroken there cannot be that concentration of the active explosive ingredient which, as stated, is liable to take place when the explosive is handled, used, or stored in the bulk or mass, and consequently the explosive cannot get into its dangerous supersensitive state.

I have shown in the drawings, Fig. 1, a shell, A, loaded with my packages or inclosed pellets *a*, of explosive, but do not, of course, intend to limit myself to the preparation of explosives for projectiles alone. Each package or pellet consists of a small portion of explosive inclosed in a flexible wrapping or covering. For such wrapping or covering I use strong thin paper or linen, or other close-grained flexible material. While I prefer paper or linen, I do not limit myself to such materials.

As indicated in Fig. 2, the explosive can be inclosed in the wrapper, and the mouth of the wrapper then tied up by thread or string *a'*. The pellet or package is then dipped in paraffine or other equivalent material to hermetically seal it and render the wrapper non-absorbent and impervious.

Instead of paper or cloth treated with paraffine some close-grained material can be used to inclose the explosive without paraffine. I contemplate also, instead of taking a piece of material and wrapping it around a portion of explosive, to attain the same result in isolating the particular portion of explosive by dipping it in or coating it with some substance which will form a tough non-absorbent and impervious envelope around it.

My method of preparing explosives, as set forth fully hereinbefore, makes their transportation, shipping, storing, and handling perfectly safe, and renders it possible, as I have found and demonstrated by numerous trials, to use dynamite and other explosives as it has not been possible to use them heretofore—that is, with the explosive separated into portions and

put up in accordance with my method, it is practicable and safe to use the high explosives for the bursting-charges of projectiles to be thrown from guns by full-service charges of ordinary black powder.

The high explosives prepared in accordance with my invention are very desirable and useful also in tunneling, mining, and blasting of all kinds, as they are then stable, unchangeable, and safe to store and handle, and the full force of the explosive can be obtained, as desired, by using an exploding-fuse sufficiently strong to break the envelopes of the packages and fire the explosive all together.

With the ordinary exploding-fuse used for firing dynamite, with or even without a small quantity of powder to assist in shattering the package-envelopes, the desired forcible action of the explosive for blasting can be obtained.

The size of the packages can be considerably varied as desired; but I prefer for ordinary use for dynamite to have them contain about one-half cubic inch of the explosive.

If desired, the envelopes for the packages can of course be made on some former by hand or machinery, to be sealed in any suitable way after being filled with explosive.

I do not claim herein the product of my method—that is, a charge or cartridge made up in accordance with my invention—as I cover such subject-matter by the claims in my other application filed this day as a division of the present case.

Having thus described my invention, what I claim is—

1. The method of preparing a cartridge of explosive, which consists in dividing the amount of explosive for the cartridge into small portions, inclosing each in an envelope to separate it entirely from the other portions, and packing the enveloped portions together to form the cartridge, substantially as and for the purpose described.

2. The method of preparing a cartridge of explosive for blasting and other purposes, which consists in separating the amount of explosive for the cartridge into small portions, inclosing each of the portions in a flexible envelope and packing the pellets so formed together, substantially as and for the purpose specified.

3. The method of preparing a charge of explosive for use, which consists in separating the mass of explosive into small portions, and inclosing each of the said portions in a flexible envelope, so as to make a rounded pellet, substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of May, 1887.

JAMES W. GRAYDON.

Witnesses:

GEO. S. PRINDLE,  
PHILIP G. RUSSELL.