

UNITED STATES PATENT OFFICE.

ALFRED BERNEY, OF JERSEY CITY, NEW JERSEY.

IMPROVED COMPOSITION FOR FILLING SHRAPNEL AND OTHER SIMILAR PROJECTILES.

Specification forming part of Letters Patent No. 35,659, dated June 17, 1862.

To all whom it may concern:

Be it known that I, ALFRED BERNEY, of Jersey City, in the county of Hudson, State of New Jersey, have invented a new material or composition of matter for filling the interstices between the balls or small shot used in shells, shrapnel, and other similar ordnance-projectiles; and I hereby declare that the following is a full and exact description of the same.

Such shells are filled with small shot or balls, and the interstices between the shot and between the shot and the inside of the shell are commonly filled with sulphur, so as to prevent the shot from moving about in the shell, and so as also to leave a cavity to receive and hold, without mixing with the shot, the charge of powder for bursting the shell. Other materials have been used; but sulphur or a mixture of sulphur and other materials has been most commonly employed. But a very serious objection to the use of sulphur is its cost. Besides, it is well known that hot sulphur poured on iron has a tendency to combine with the latter and render it weak and brittle, thus impairing somewhat the strength of the shell. Another objection to sulphur is that it sticks to and fouls the shot and pieces of shell after the explosion.

Now, my invention and improvement consists in using the residue from the distillation of coal-tar, generally known as "asphaltum" or "artificial asphaltum," instead of sulphur, in filling shells.

To enable others skilled in the art to which my invention relates to understand and use my invention, I proceed to describe both the mode of preparing my composition or material and the manner of using the same for filling shells.

To prepare my material I take common coal-tar and put it into a boiler or caldron and boil it about ten hours. The treatment serves to drive off nearly all the volatile matter and leaves a residuum, which is the material which I prefer for filling shells. It is, when cold, very compact, hard, and brittle, and breaks with a clean conchoidal fracture. After the material has been prepared it may be poured into barrels and kept for use. When to be used it is melted and poured into the shell in the same manner that shells are filled when sulphur is used, and which is well understood by those skilled in the manufacture of ordnance-shells.

Some of the advantages of my invention are that the material is cheap and easy to be procured. When poured into the shell it does not at all attack or corrode the iron, but preserves it perfectly; and when the shell bursts it flies off and leaves the shot and pieces of shell clean, so that they will be scattered with greater force, and so do more execution.

It is not necessary to heat or boil the shells before filling them with my material, and any waste material which runs on the outside of the shell in filling them is easily removed, while sulphur is difficult to remove.

I have described what I regard as the best mode of preparing the asphaltum for use in carrying out my invention; but I do not confine myself to the material prepared in this manner. What is necessary in order to obtain material which will answer for my purpose is that all volatile and pitchy matters should be driven off. Nor do I confine myself to the use of coal-tar asphaltum, for other materials—such as the residuum from the distillation of petroleum and from the distillation of various bitumens, and some kinds of natural asphaltum when they are free from pitchy matters, or may be freed from them by distillation or other similar treatment—will furnish a hard, clean, and brittle material proper for carrying out my invention in the filling of shells.

My material may be used either by itself or mixed with other substances—such as coal-dust, sand, &c.—with which it may be easily combined and mixed.

I am aware that common rosin has been used for filling shells such as those to which my invention relates. I therefore do not claim it as part of my invention. Nor do I claim the use of paraffine, nor the use of materials of the nature of gum or wax, the same having been employed for purposes similar to those to which my invention is applicable.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

The use of asphaltum for the purpose of filling shells, substantially as herein set forth and described.

ALFRED BERNEY.

Witnesses:

EDM. F. BROWN,
CHAS. F. STANSBURY.