(Model.)

J. L. BACHELDER.

EXPLOSIVE SHELL.

No. 305,881. Patented Sept. 30, 1884.

Fig. 1

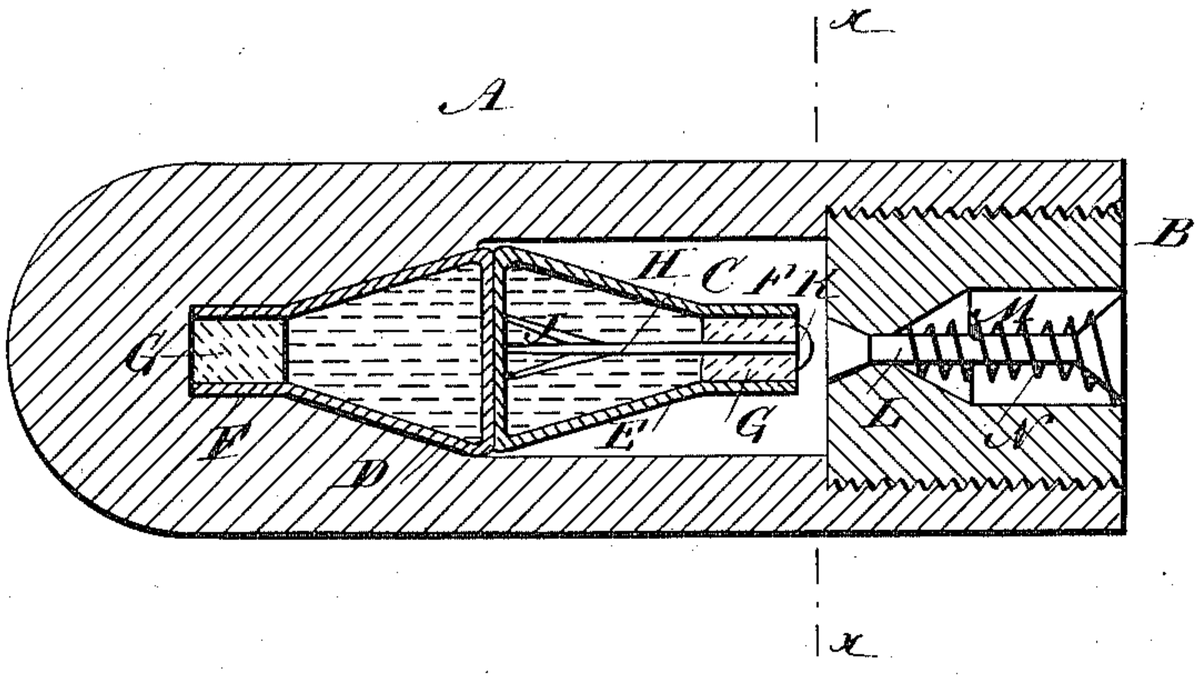
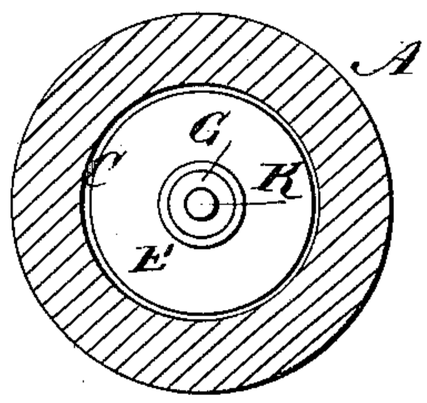


Fig. 2



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EXPLOSIVE SHELL.

SPECIFICATION forming part of Letters Patent No. 305,881, dated September 30, 1884.

Application filed May 10, 1884. (Model.)

To all whom it may concern:

Be it known that I, JOHN L. BACHELDER, of Globe, in the county of Gila and Territory of Arizona, have invented a new and Improved Explosive Shell, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved explosive shell for cannons, which shell is perfectly harmless until it strikes some solid object with great force, when it explodes with enormous power.

The invention consists of the combination, with a shell, of fragile vessels containing liquids or substances the mixture of which forms a highly explosive compound, which, however, will not cause an explosion until the shell is brought into forcible contact with a resisting body or object, together with means to effect the breaking of said fragile vessels upon firing the shell from the ordnance, substantially as hereinafter more fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a longitudinal sectional elevation of my improved explosive shell. Fig. 2 is a cross-sectional elevation of the same on the line *x x*, Fig. 1.

The shell A, made of cast-iron or other metal, has its butt-end open, and this butt-end is closed by a plug, B, screwed into the opening.

In the cavity C of the shell two funnel-shaped glass vessels, D and E, are held, each vessel being provided with a neck, F. One of the vessels—for instance, D—is held in a suitable recess, and the two vessels are held together at their bases. The neck of each vessel is closed by a stopper, G. A rod, H, passes through the stopper G of the vessel E, and the inner end of the rod, which is adjoining the inner end of the base of the vessel, is provided with a series of prongs, J. A head, K, is formed on the outer end of the rod H, and in the corresponding end of the shell a firing-pin, L, is held in a longitudinal central opening, M, in the plug B, and by a spring, N, surrounding the pin L, the said pin is forced in the direction toward the outer end of the plug. The vessels D E are filled with two distinct liquids or mixtures, which, when they are mixed, form a highly explosive mixture. The shell is fired out of a cannon, and the force of the explosion that drives the shell out of the cannon forces the firing-pin into the shell and breaks the two glass vessels that hold the two substances, so that the said substances mix as the shell leaves the cannon and form a mixture ready to explode when the shell strikes any object. The substances or mixtures referred to may be of such kind as to form a highly explosive mixture when combined; but this mixture must be of such a nature that it will not explode immediately upon being formed, but only explodes when it receives a heavy shock or blow. The spring N keeps the firing-pin in place. The shell is perfectly harmless until the vessels D and E are broken. The vessels are preferably made in the shape shown; but they can have any other desired shape.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The shell having fragile vessels containing substances or liquids the mixture of which together with the concussion caused by the forcible contact of the shell with a resisting body or object will produce an explosion, in combination with a firing-pin held in the rear of the shell and a rod in the rear fragile vessel, substantially as and for the purpose set forth.

2. The combination, with a shell, of two fragile vessels held in the same and adapted to contain substances, a firing-pin held in the rear end of the shell, and a rod in the rear vessel, substantially as herein shown and described.

3. The combination, with a shell, of two fragile vessels held in the same and adapted to contain substances, the firing-pin L, in the butt-end of the shell, and of the spring N, surrounding the said pin, substantially as herein shown and described.

4. The combination, with the shell A, of the fragile vessels D E in the same, the rod H, held in the vessel E and provided on its inner end with prongs J, substantially as herein shown and described.

5. The combination, with a shell, of the fragile vessels D E, the rod H, held in the vessel E and having prongs J on its inner end, and of the firing pin L, substantially as herein shown and described.

Witnesses: JOHN LEE BACHELDER.

JAMES WILEY,

FREDERICK W. WESTMEYER.