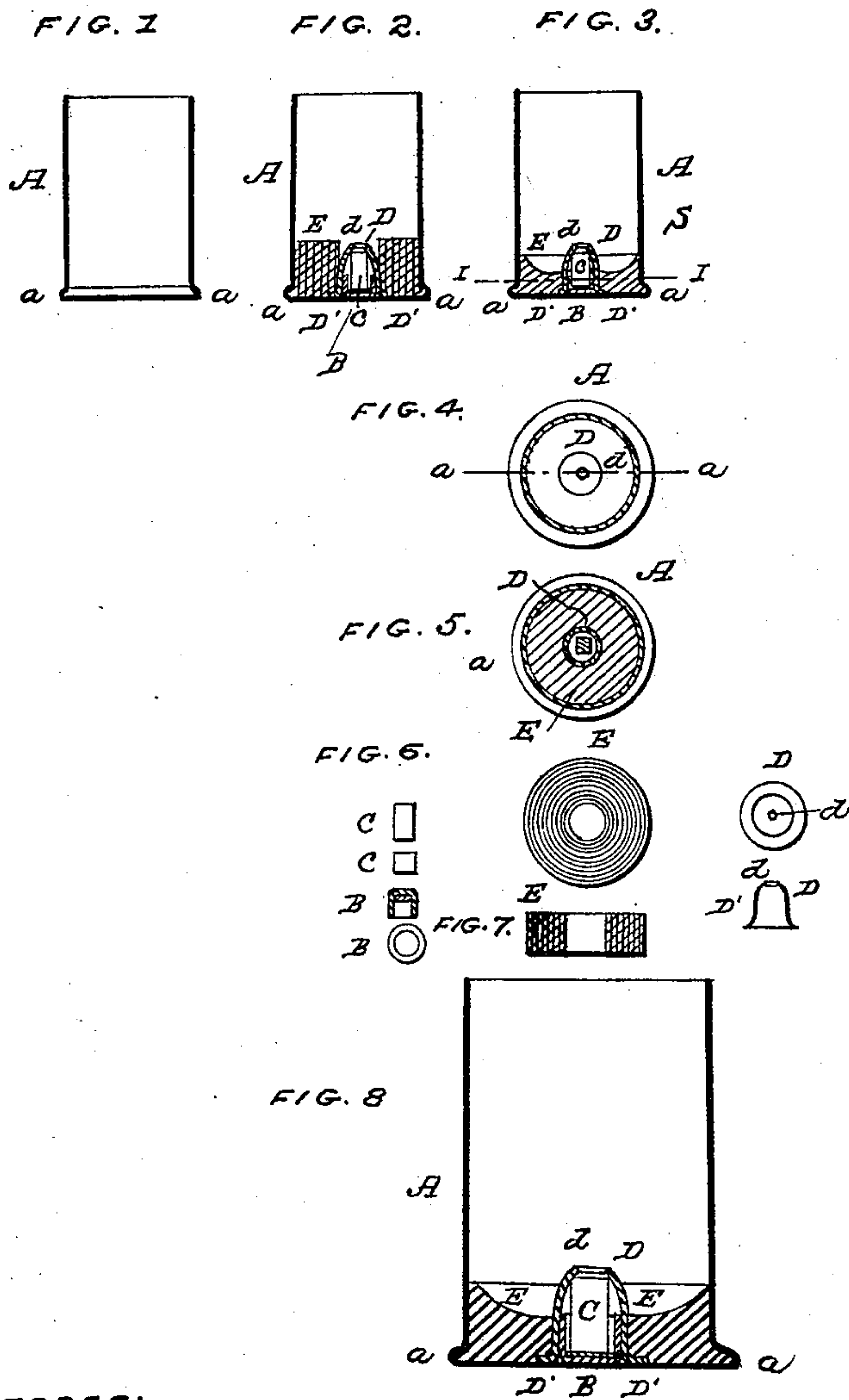


LEET & HOTCHKISS.
Metallic Cartridge.

No. 98,278.

Patented Dec. 28, 1869.



WITNESSES:
W. C. Coley
C. C. Livingstone

INVENTOR.
C. D. Leet
R. B. Hotchkiss
by their attorney
J. D. Latham

UNITED STATES PATENT OFFICE.

CHARLES D. LEET, OF VIENNA, AUSTRIA, AND B. B. HOTCHKISS, OF NEW YORK, N. Y.

IMPROVEMENT IN METALLIC CARTRIDGES.

Specification forming part of Letters Patent No. 98,278, dated December 28, 1869; antedated December 15, 1869.

To all whom it may concern:

Be it known that we, C. D. LEET, of the city of Vienna, in the Empire of Austria, formerly of Springfield, in the State of Massachusetts, and B. B. HOTCHKISS, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Cartridges; and we do hereby declare that the following is a full and exact description thereof.

Our invention combines the advantages of what are known as the "Boxer" cartridge, which communicates the fire in the center of the rear of the powder by a blow of a needle or pin in the line of the center of the bore, with those of the strong and impermeable form of metallic cartridge known generally in this country as the "Smith & Wesson" cartridge, in which the entire shell is formed in a single piece without any joint or aperture. In the Smith & Wesson cartridge the fulminate is placed in the rim, and it is required to provide every portion of the entire periphery of the rear of the cartridge with a reliable quantity of fulminate in order to insure the discharge, because any cartridge is necessarily liable to turn and to be placed in an indefinite variety of positions. Our cartridge, on the contrary, receiving the blow at the center, may turn in every possible position without changing the point struck. It requires simply that a sufficiency of fulminate be presented at a single point. We can employ an ordinary percussion-cap at this point.

We will first describe what we consider the best means of carrying out our invention, and will afterward designate the points which we believe to be new therein.

The accompanying drawings form a part of this specification.

Figure 1 is a section of our shell alone. Fig. 2 shows the same after our additional parts have been introduced, but not secured. Fig. 3 shows the same secured ready to receive the powder and bullet. Fig. 4 is a cross-section of our cartridge on line *s s* in Fig. 3. Fig. 5 is a cross-section of the same on line *T T* in the said figure. Fig. 6 is an end view, and Fig. 7 a cross-section of the packing which we

employ to confine the central parts. The small figures on each side of these last represent details detached. Fig. 8 represents a central longitudinal section of the parts, the same as Fig. 3, but on a larger scale.

The figures represent the novel parts and combinations, with so much of the others as appear, necessary to show their relation thereto.

Similar letters of reference indicate like parts in all the figures.

Referring to Fig. 1, A is a shell of copper or soft brass, struck up or otherwise manufactured in the shape represented. It is made successfully in a single piece, without joints or seam, by treating the metal with a succession of dies, annealing at short intervals, in the same manner as has been long practiced in the manufacture of what are known as the "Smith & Wesson" cartridges. The flange *a* at the rear, instead of receiving fulminate and being pressed down or flattened, is made somewhat thicker or more open than in the Smith & Wesson cartridge, and receives the filling to be described below.

B is an ordinary percussion-cap, manufactured in the ordinary manner.

C is a pin, of iron or other hard material, inclosed therein, which we will call the "anvil."

D is a flanged casing, having a hole at its inner end, and fitting over the cap B and the angular hard piece or anvil C, as represented. The fire is produced by a blow on the center of the rear face of the cartridge, which induces a concussion through the metal, and, by the shock of the fulminate against the anvil, produces an explosion. The fire escapes through the hole *d* at the front of the case D, and ignites the powder from that point, in the same manner as the ignition is effected in the Boxer cartridge.

The casing D is carefully proportioned in length to the length of the anvil C and the thickness of the percussion-cap B, with its fulminate lining. A flange, D', is turned out on the rear end of the casing D, which applies fairly against the rear of the shell A, when all the parts are tightly confined in place.

E is a packing of paper, coiled around the

casing D, and forced down by means of a press, so as to lock in the interior of the flange *a*, and to hold itself and the inclosed casing D D' very firmly in place against the rear of the shell A. After the entire rear end has been thus completed, the cartridge may be filled with powder and the projectile secured in the front thereof, and it may be treated in all the subsequent stages in the same manner as any ordinary metallic cartridge, with the advantage that it is more reliable in use than the Smith & Wesson, with a less quantity of fulminate, and that it is less liable to damage from rough usage than the Boxer cartridge.

We have described paper rolled and compressed edgewise to form the packing E around the casing B and its contents; but other material may be substituted for paper without entirely defeating the objects of our invention. It is mainly important that the material be dry and adapted to lock into the flange of the cartridge-shell, so as to confine the central parts very firmly in position. Another function of the packing E is to strengthen the back of the shell and reduce the danger of its breaking or bursting.

By reason of the fact that our cap and anvil are held centrally by the packing E, introduced as shown, and separated therefrom by the intermediate casing D, we are able to con-

fine the parts very efficiently and to re-enforce the butt of the cartridge very effectually, still holding open a channel for the fire within the casing, with a trifling expense, and with very simple and always accessible means.

We do not claim the metallic shell or any of the several parts separately; but,

Having now fully described our improvement in the several degrees of perfection enumerated, what we claim as new, and desire to secure by Letters Patent, is as follows:

We claim—

The closed or tight-backed cartridge-case A, inner casing D, packing E, the central fulminate B, and anvil C, combined and arranged in the shell of the cartridge, as and for the purposes herein set forth.

In testimony whereof we have hereunto set our names in presence of two subscribing witnesses.

CHARLES D. LEET.
B. B. HOTCHKISS.

Witnesses to the signature of C. D. Leet:
D. F. KORHAMMER,
A. H. LANDON.

Witnesses to the signature of B. B. Hotchkiss:

THOMAS D. STETSON,
C. C. LIVINGS.