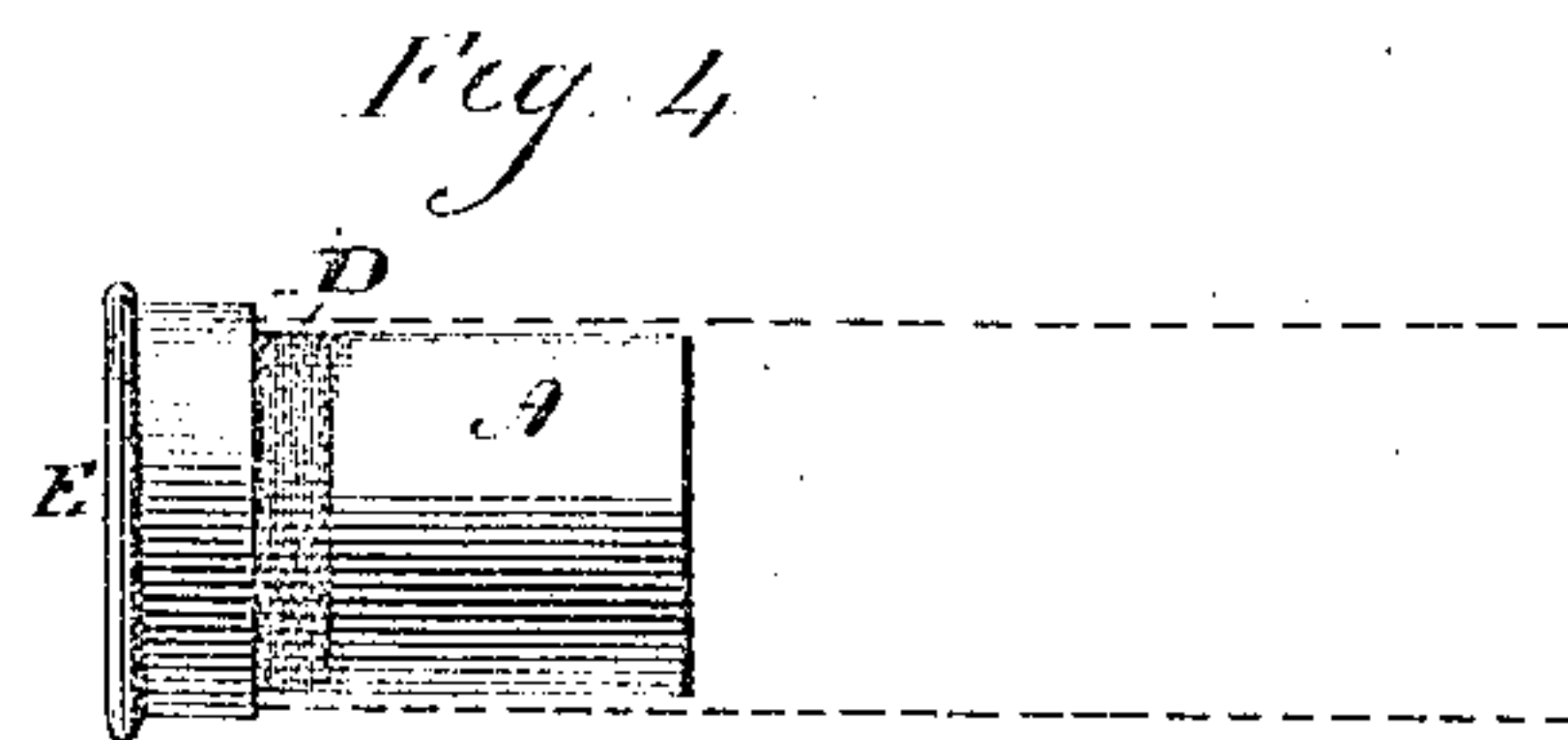
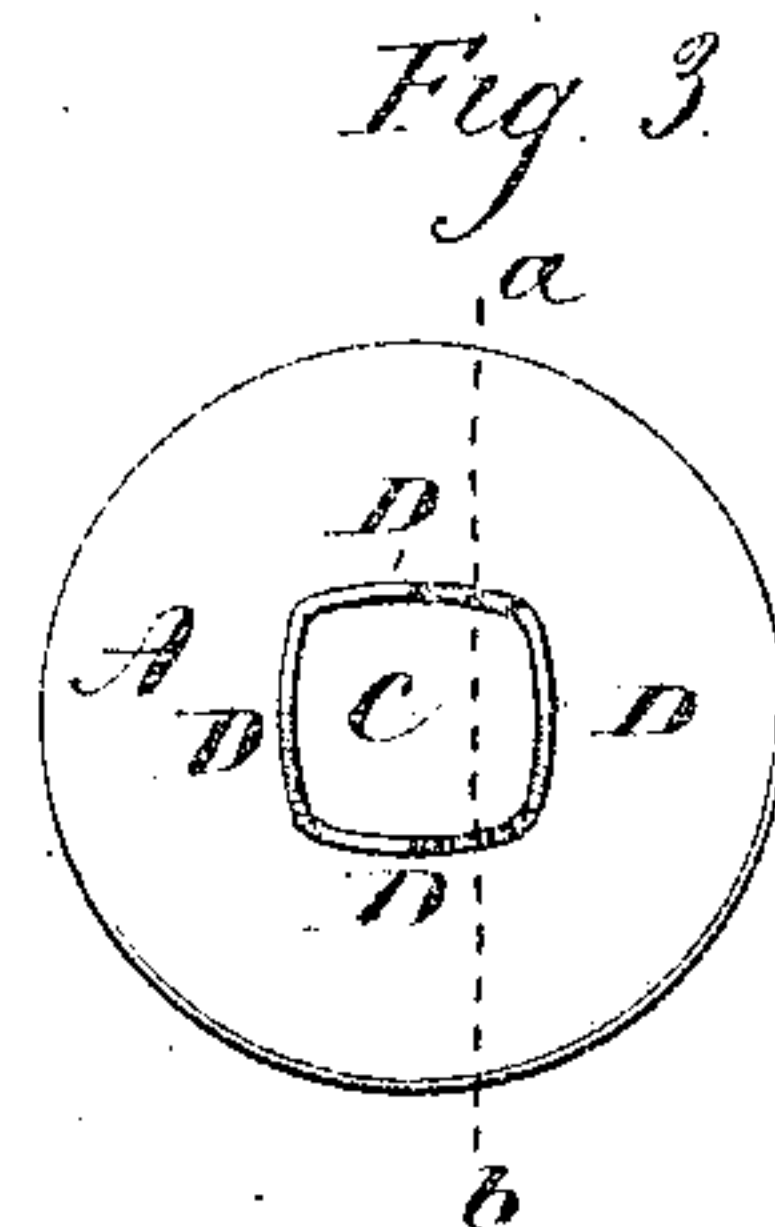
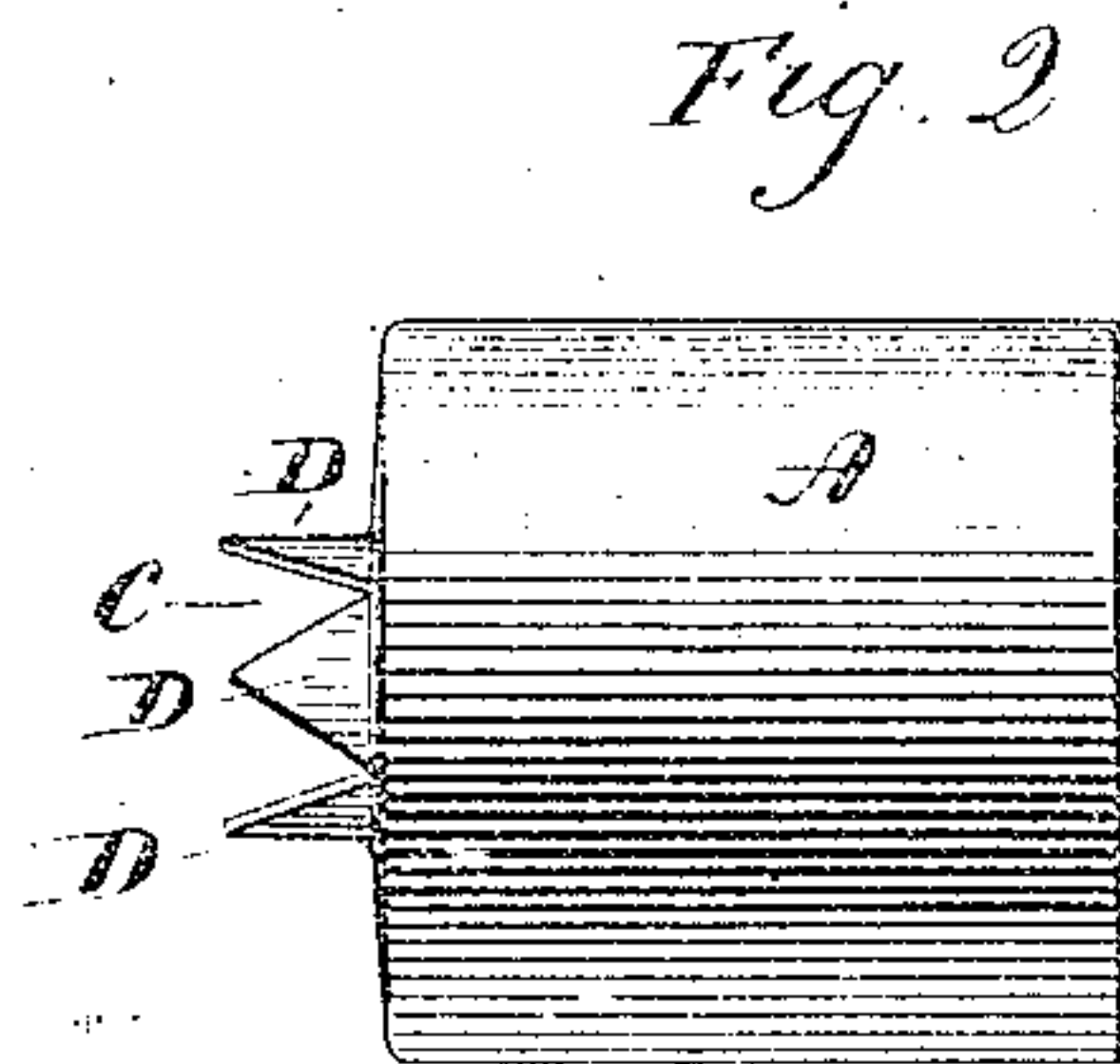
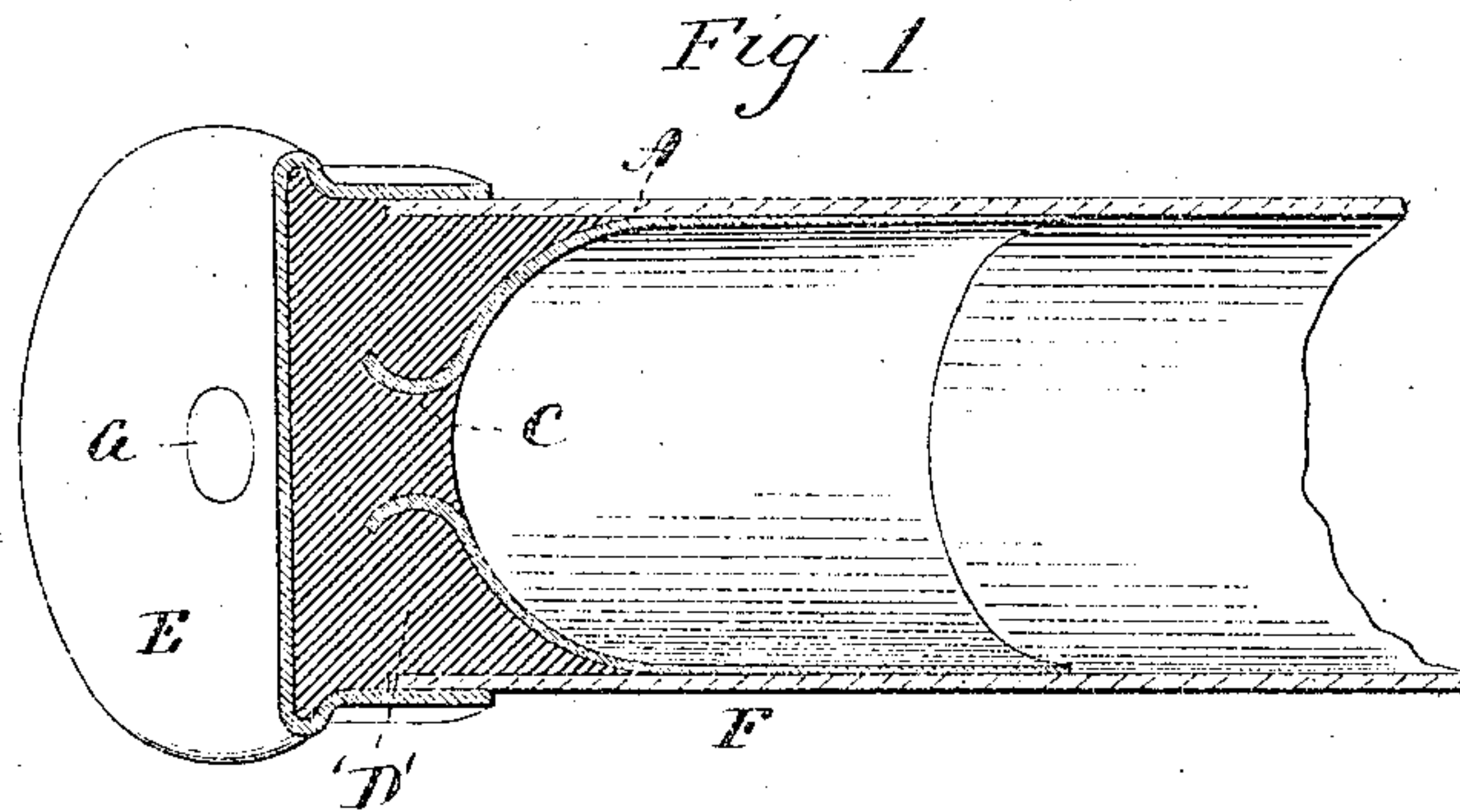


(No Model.)

J. GARDNER.
PAPER SHELL CARTRIDGE.

No. 450,454.

Patented Apr. 14, 1892



Witnesses.
J. H. Shumway.
William D. Kellogg.

John Gardner,
Inventor.
By Wm. Earl Seymour

UNITED STATES PATENT OFFICE.

JOHN GARDNER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
WINCHESTER REPEATING ARMS COMPANY, OF SAME PLACE.

PAPER-SHELL CARTRIDGE.

SPECIFICATION forming part of Letters Patent No. 450,454, dated April 14, 1891.

Application filed August 15, 1890. Serial No. 362,094. (No model.)

To all whom it may concern:

Be it known that I, JOHN GARDNER, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Paper-Shell Cartridges; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in

Figure 1, an enlarged view, partly in perspective and partly in longitudinal section, of a cartridge constructed in accordance with my invention, the section being taken at one side of the center of the cartridge on a line corresponding to the line *a b* of Fig. 3; Fig. 2, a detached view in side elevation, on the same scale of the re-enforce lining in its blank form; Fig. 3, a view thereof in end elevation; and Fig. 4, a view in side elevation showing the head, wad, and re-enforce lining duly assembled, but with the shell removed and indicated only by broken lines.

My invention relates to an improvement in paper-shell cartridges, the object being to construct them so as to prevent their shells from shearing off on the inner edges of their heads under the expansive force of the explosion taking place when the shells are discharged and to increase their durability in use.

With these ends in view my invention consists in a paper-shell cartridge provided with an internal metal re-enforce, located in line with the inner edge of its head, and in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

My improved re-enforced lining *A* consists of a cylindrical metal cup shaped to fit the inner walls of the inner end of the cartridge-chamber very closely and having its inner end rounded to conform to the rounded inner end of the said chamber. The center of the inner end of the cup is displaced to form the central opening *C* and four prongs *D*, which latter are embedded in the wad *d*, inclosed within the head or cap *E* and shell *F* of the

cartridge. The inner end of the cup is located in line with the inner edge of the said head and receives the force of the explosion and protects the shell from being sheared off on the inner edge of the cup, the said inner end of the cup being thicker than its outer end, which grows gradually thinner, so as to shade into the inner surface of the shell.

In making my improved cartridge the blank cup is placed in the shell after the same has been assembled with the wad and head. The cup is then struck down into its final rounded shape, the wad at the same time being compressed and having the prongs of the cup driven into it. After this the wad is adapted to receive the percussion-cap *G*. The internal lining thus described not only prevents the shell from being sheared off on the edge of the head, but also protects the shell and prolongs the life of the cartridge by increasing the number of times that it may be re-loaded.

Although the form of lining herein shown secures very satisfactory results, it is not essential to my invention that it be strictly followed, as other forms of linings located in line with the inner edge of the shell might answer the purposes of my invention.

I would have it understood that I do not limit myself to the exact form herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. A paper-shell cartridge provided with an internal metal re-enforce located in line with the inner edge of its head and consisting of a light metal cup having its inner end rounded, perforated, and pronged, the prongs being embedded in the wad, substantially as described.

2. A cartridge consisting of the paper body or shell *F*, the metal head *E*, the flange of which surrounds the outside of the head end of said body; the wad *d* within the shell at the

head end, the said wad concave shape on its forward side, combined with the cup-shaped re-enforce C, having its closed end convex shape, corresponding to the concave shape of the wad, and so as to set therein, the said closed end of said re-enforce constructed with prongs projecting therefrom extending into and so as to engage with said wad, substantially as described.

JOHN GARDNER.

Witnesses:

DANIEL H. VEADER,
A. W. EARLE.