

(No Model.)

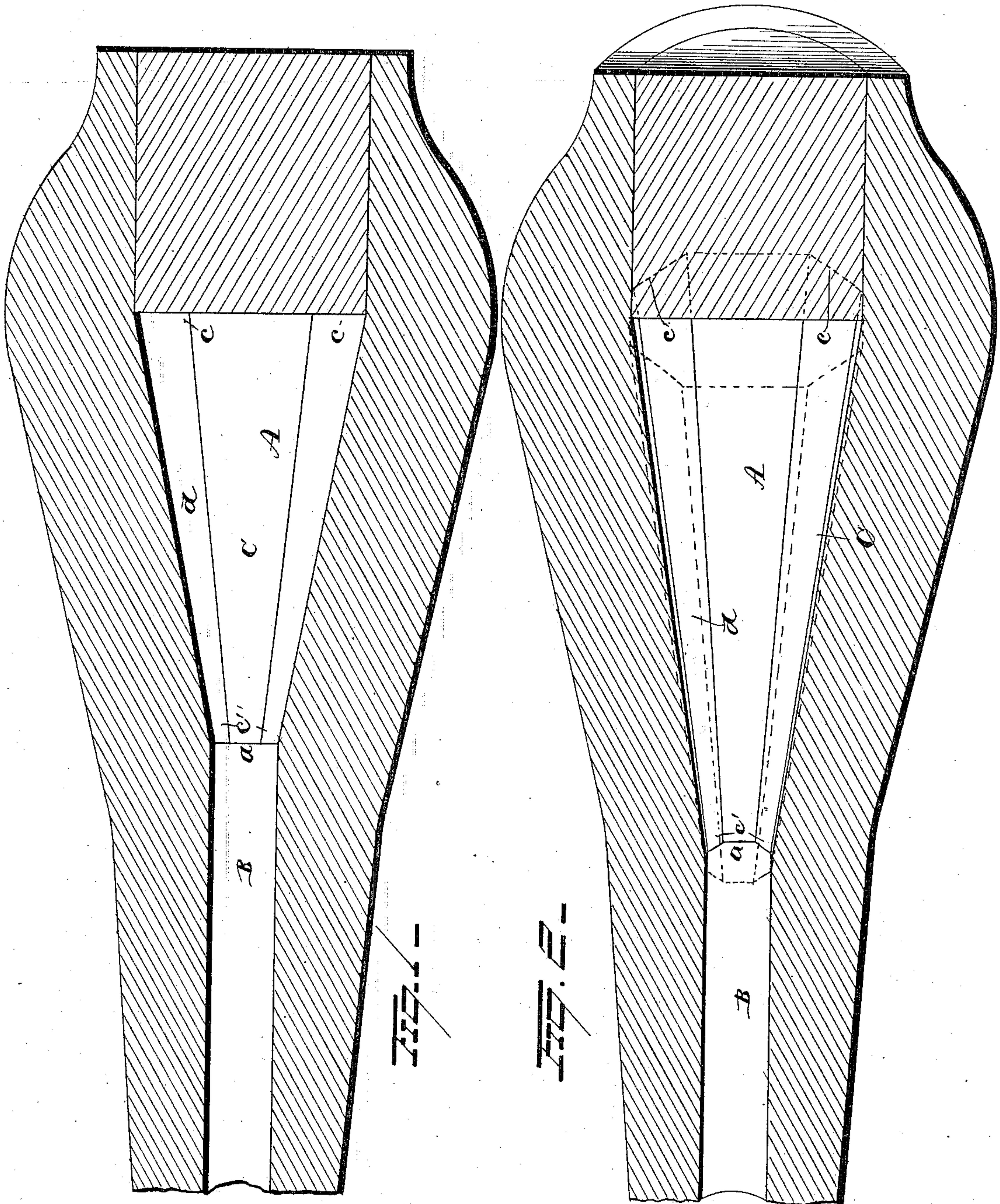
2 Sheets—Sheet 1.

A. N. EASTMAN.

GUN.

No. 307,449.

Patented Nov. 4, 1884.



WITNESSES

*W. Nottingham*  
*Geo. F. Downing*

INVENTOR

*A. N. Eastman*  
*R. H. Seymour*  
Attorney



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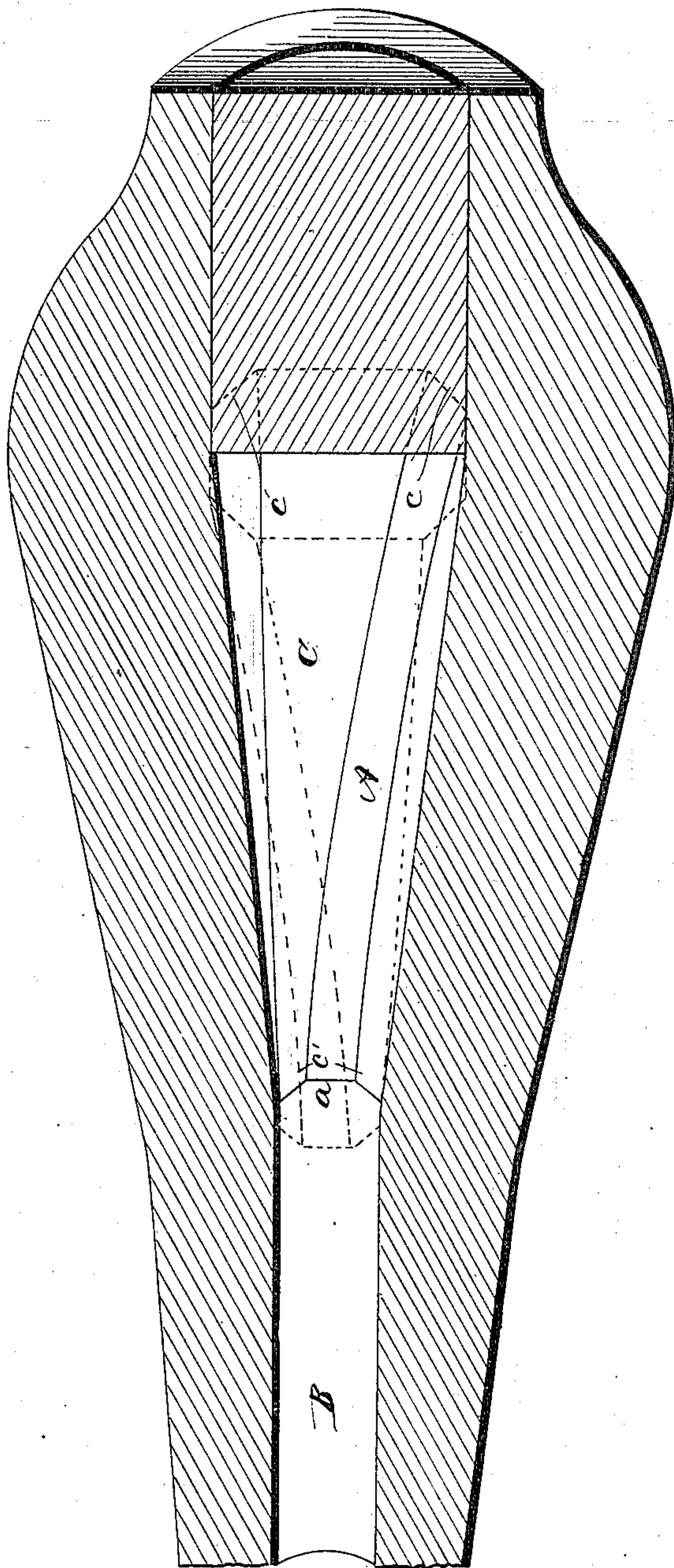
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# UNITED STATES PATENT OFFICE.

ALBERT N. EASTMAN, OF ASHTABULA, OHIO.

## GUN.

SPECIFICATION forming part of Letters Patent No. 307,449, dated November 4, 1884.

Application filed March 12, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT N. EASTMAN, of Ashtabula, in the county of Ashtabula and State of Ohio, have invented certain new and useful Improvements in Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in guns, the object of the same being to provide an exploding-chamber of such construction that the recoil shall be diminished and penetration increased.

With these ends in view my invention consists in an exploding-chamber larger at the breech end than at the muzzle end, a transverse section of which taken at any point between said ends is a plane polygon.

My invention further consists in certain features of construction and combinations of parts, as will be fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the chamber, partially in section, applied to heavy ordnance. Fig. 2 is a transverse sectional view, and Fig. 3 is a view showing the sides of the chamber arranged spirally.

A represents the base or breech end of an exploding-chamber. In the accompanying drawings this base is represented as a regular octagon, the chamber itself forming, as represented in Fig. 1, the frustum of a right pyramid.

$a$  represents the upper base or muzzle end of the chamber, at which point a smooth round bore, B, begins. The sides C of the chamber are plane rectilinear figures—"trapezoids"—the upper end,  $c'$ , of each plane C being shorter than and parallel to the lower end,  $c$ , and the sides  $d$  incline toward each other. The bases A and  $a$  are preferably regular polygons, and the chamber itself, as before stated, the frustum of a right pyramid; but I do not wish to limit myself to a chamber of any particular number of sides, as further experiment may prove that a chamber whose bases are polygons of a greater or lesser number of sides than eight will produce better results than

those already attained; nor do I wish to confine myself to regular figures in the construction of the several sides of the chamber, although I consider it preferable to so construct it.

The powder which is supposed to fill the chamber is ignited by any approved device at a point,  $o$ , near the muzzle end of the chamber.

My experiments have shown that a chamber of the construction explained above will give the projectile a great penetration, and the recoil will be comparatively slight.

My theory for the results obtained from this construction, as far as I have determined upon a theory, is as follows: The lesser part of the charge and that part in close proximity to the projectile being ignited first, gives the projectile a gradual start. As the greater portion of the charge becomes ignited the expansive force of the gases increases, gradually accelerating the speed of the projectile until it leaves the muzzle. These results would follow from the use of a conical chamber, which, I am aware, is not new.

The advantages which I claim for my construction over those of a simple conical chamber are the following: As the gases begin to form from the ignition of the charge there is a tendency to force their motion in every direction, a portion of the motion being lost to the projectile in a conical chamber by the transverse whirls which the smooth surface of the conical chamber allows. In my improved chamber, however, these whirls are obstructed by the angles which are formed where the side surfaces of the chamber meet, and as the edges of these diedral angles all tend toward the base of the projectile the force of the gases will be guided in this direction, and an increased velocity will be thereby imparted to the projectile. If the side of the chamber be slightly twisted or set spirally, as represented in Fig. 3, a whirl will be imparted to the projectile similar to that imparted by a spiral groove in a rifled barrel, without the hinderance caused by the friction between the projectile and such a groove. This chamber is applicable to both breech and muzzle loading fire-arms, as well as breech and muzzle loading heavy ordnance.

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

1. An exploding-chamber for a gun, said  
5 chamber being larger at the breech end than at the muzzle end, a transverse section of the chamber passing through any point in the slant height being a plane polygon, substantially as set forth.

10 2. An exploding-chamber for a gun, said chamber being larger at the breech end than at the muzzle end, a transverse section of the chamber passing through any point in the slant height being a regular plane polygon,  
15 substantially as set forth.

3. An exploding-chamber for a gun, said chamber being larger at the breech end than at the muzzle end, and bounded by plane surfaces, substantially as set forth.

4. An exploding-chamber for a gun, said  
20 chamber being in form the frustum of a right pyramid, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALBERT N. EASTMAN.

Witnesses:

FREDERICK A. WITTICH,  
H. A. EASTMAN.