

S. W. PAINE.  
Shot Cartridge.

No. 111,377.

Patented Jan. 31, 1871.

Fig. 1.

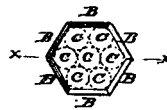


Fig. 2.



Fig. 3.

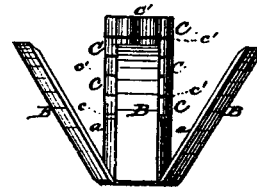


Fig. 4.

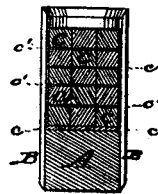


Fig. 5.



Witnesses.

*Alfred M. ...*  
*C. A. ...*

Inventor.

*Seth H. Paine,*  
*by Crindle & Eyers,*

Attys.

# UNITED STATES PATENT OFFICE.

SETH W. PAINE, OF WILLIAMSPORT, PENNSYLVANIA.

## IMPROVEMENT IN SHOT-CARTRIDGES.

*Specification forming part of Letters Patent No. 111,377, dated January 31, 1871.*

*To all whom it may concern:*

Be it known that I, SETH WHITE PAINE, of Williamsport, in the county of Lycoming and in the State of Pennsylvania, have invented certain new and useful Improvements in Gun-Cartridges; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a plan view of the upper or forward end of my improved cartridge. Fig. 2 is a side elevation of the same. Fig. 3 is a like view of said cartridge with the casing opened outward; and Fig. 4 is a longitudinal central section of the same on *x x* of Fig. 1.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to secure increased range; to decrease the friction of the cartridge within the barrel; to prevent the "leading" of said barrel, and to enable the size of the shot or ball to be varied at will, so that guns of different bores and styles may be readily fitted. To which end,

It consists in a cartridge having its sides composed of a number of plane faces, substantially as and for the purpose hereinafter described.

It further consists in the employment of binders between the layers of shot, substantially as and for the purpose hereinafter specified.

It further consists in the cartridge as a whole, substantially as and for the purpose hereinafter set forth.

It finally consists in the shell divided longitudinally into a series of staves, which staves are hinged at their rear ends to or upon the base, so as to be capable of opening outward, substantially as and for the purpose hereinafter shown.

In the annexed drawing, A represents the base of the cartridge, having a length somewhat greater than its diameter, and so constructed as that its sides are composed of a number of plane faces, *a*.

Hinged to or upon the lower end of the base A is a series of staves, B, having about twice and one-half its length, and a width corresponding to the width of the faces *a*, so that,

when closed together against said base, said staves shall form a casing that corresponds in internal and external shape with said base, and has an internal diameter exactly equal to the exterior of the same.

By means of the peculiar form of the shell the lower end of each staff maintains its position in line with the lower end and contiguous face of the core, whether opened or closed, so as thereby to enable said parts to be easily hinged together. Such, however, would not be practicable were the staves sections of a cylinder, as, in the latter case, the line of their lower ends would correspond to the base only when said staves were closed together.

The ends of each staff are beveled forward and outward, as shown in Fig. 4, for the purpose hereinafter described.

The interior of the casing contains a number of shot, C, having each the form of a short cylinder, with its ends made correspondingly convex and concave, which shot are arranged in successive layers with the line of their axes parallel with that of the case, and their convex ends upward or forward, in which position the concave lower or rear end of each shot fits over the corresponding convex end of the shot immediately beneath or in rear of the same.

Beneath or in rear of the layer of shot, next to the base, is a thin piece of leather or other flexible material, *c*, while between the layers and upon the upper or forward end of the forward layer are placed binders of thin muslin, *c'*, made adhesive, so as to confine the shot together.

As thus constructed and arranged, with the upper ends of the staves temporarily secured together by any suitable means, the device is ready for use.

When the band confining the forward end of the staves is removed, and the cartridge placed within the gun, and confined therein by any suitable means, the shell or case thereof comes in contact with the inner surface of the barrel only at the angles formed by the joined edges of the staves, and therefore not only prevents "leading," but also has but a fraction of the usual friction produced by its exit from the barrel.

Upon leaving the barrel, the pressure of the air upon the beveled forward ends of the

staves spreads them outward, so as to release the charge of shot and permit the latter to pass freely onward, while the beveled lower ends of said staves give them freedom of action regardless of the pressure of the wad upon the rear end of the cartridge.

The form of the shot alone secures a range of more than ordinary length without the use of the binders; but by their use a large increase of range is obtained, which increase will vary in accordance with the strength of adhesive mixture employed upon said binders.

The peculiar office of the core is to impart the explosive force of the powder to the shot without disturbing or changing their relative positions, which result is effectually accomplished and the charge caused to leave the barrel in the same compact form as was occupied by it in the cartridge.

By varying the thickness of the staves, shot of different sizes may be used, and even single bullets, by means of which all of the advantages possessed by both rifle and shot-gun may be secured with a single barrel.

Having thus fully set forth the nature and

merits of my invention, what I claim as new is—

1. A shot-cartridge, having its sides composed of a number of plane faces, substantially as and for the purpose specified.

2. The binders *c'*, constructed of suitable adhesive material, and applied to each layer of shot in the manner and for the purpose substantially as shown and described.

3. The hereinbefore-described shot-cartridge, consisting of the base *A*, the staves *B*, and the shot *C*, when the parts are constructed and arranged substantially as and for the purpose set forth.

4. A shot-cartridge having its shell divided longitudinally into a series of staves, *B*, which are hinged at their rear ends to or upon the base *A*, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of January, 1871.

Witnesses: SETH WHITE PAINE.  
HENRY W. WATSON,  
HUGH MONTGOMERY.