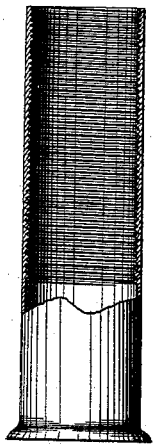
B. L. BUDD.

CARTRIDGE.

No. 190,190. Patented May 1, 1877



Witnesses:

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UNITED STATES PATENT OFFICE.

BERN L. BUDD, OF FAIRFIELD, CONNECTICUT.

IMPROVEMENT IN CARTRIDGES.

Specification forming part of Letters Patent No. **190,190**, dated May 1, 1877; application filed October 12, 1876.

To all whom it may concern:

Be it known that I, BERN L. BUDD, of the town and county of Fairfield, in the State of Connecticut, have invented a new and useful Improvement in Metallic Cartridge-Shells, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to produce a shell particularly for shot-guns, which will improve the fire by increasing the concentration of the shot upon discharge, and, as a consequence, enable more shot to be put within a given space at a given distance.

Incidentally to this result, I also increase the average effective range of the charge since the shot being less divergent in their course, the liability of an object at a distance to be hit by any one or more is greater.

In cartridge-shells, as heretofore made, the sides of the case being smooth immediately above the powder, or other explosive charge, it has been necessary, in order to properly bind and hold said charge, to use a wad a size larger than the bore. One wad not proving sufficient, it has, as a rule, been customary to use two between the powder and shot. For instance, a No. 12 bore requires two No. 10 wads, a No. 10 bore, two No. 8 wads, and so on.

These wads receive the primary impulse of the expanding gases generated by the ignition of the charge, and push the shot before them, still in contact with their forward surface, until the moment of emergence from the muzzle. Upon the evenness of this pushing action, particularly at the muzzle, and upon the parallelism of the wad (or wads) with its primary position in its passage through the barrel, and at the moment of emergence, depends the concentration of the shot. Should the wad, while pushing the shot, be deflected from its proper position, especially at the moment of emergence, the relations of the shot to each other will be disturbed, and they will not only tend to separate, but even to leave the line of aim.

In using wads a size too large the tendency to be deflected, whether from inequality in the material of which they are composed at different parts of the circumference in contact with the bore, or from matter caked upon said bore from previous discharges, or from the various retarding effects of excessive friction, is very great. With such wads, therefore, the accuracy, concentration, and average range of fire are subjected to limitation.

In my invention I groove, chase, or roughen the inner circumferential portion of the shell immediately above the explosive charge, so that fine sharp projecting edges, not materially rising above the plane of the surface, are formed. These edges bite into and hold the wad upon its periphery, whereby I am enabled to use a wad or wads of the same size as the bore, said wad or wads properly resting on the powder, through the instrumentality of the grooving or roughening, until the moment of discharge, and then traveling evenly and smoothly, and retaining their proper position perpendicular to the charge of shot while in contact therewith.

This grooving, roughening, or chasing may be performed by any of the known means familiar to mechanics. The grooves may be continued, and I have shown them as continued, to the mouth of the shell, in order to hold the Baldwin wad, which is usually used to bind and retain the shot in position.

But I am aware that a device of this nature for the purpose of confining the wad over the shot is described in Letters Patent granted to Ethan Allen, May 16, 1865, and numbered 47,688. Binding the wad over the shot is, however, essentially different in object and result from my invention. The shot-wad is intended to secure the whole charge from chance displacement. It travels immediately in advance of the shot when the piece is discharged, and has no propelling effect whatsoever. The impulse is from the rear, and so long as that impulse acts upon a diaphragm perpendicular to the base of the shot-charge the latter will measurably insure the proper position of the wad in advance, should this be material.

My invention, however, is designed not only to hold and confine the wad upon the powder, in which function it increases the security of the cartridge beyond that afforded by the grooving at the mouth, but, in addition, to increase the efficiency of the charge, by secur-

ing the essentials to proper rapport of the components during the passage through the barrel.

What I claim as my invention, is—

A cartridge-shell having fine circumferential grooving or chasing immediately above the portion which receives the explosive material, substantially as and for the purpose described.

BERN L. BUDD.

Witnesses:
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