

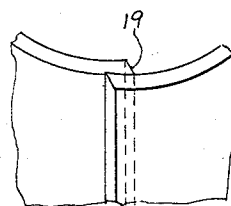
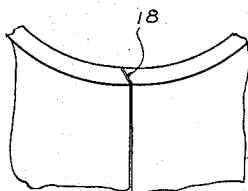
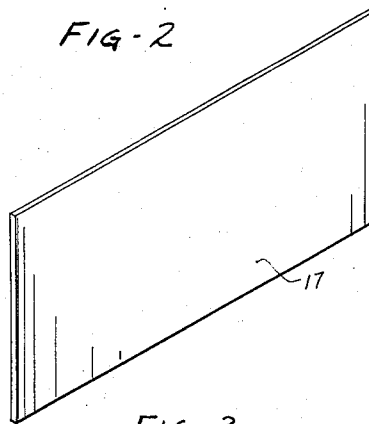
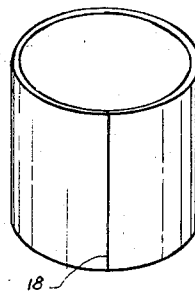
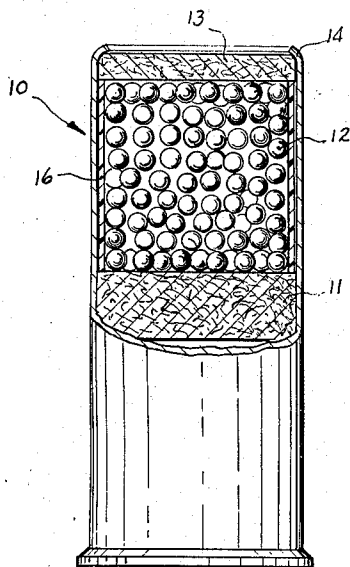
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2,897,758

METALLIC SHOTSHELL

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2,897,758

METALLIC SHOTSHELL

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1 Claim. (Cl. 102—42)

This invention relates to shotshells and in particular to metallic shotshells.

Among the characteristics of shotshells which require control is the dispersion pattern. Dispersion pattern, which is frequently referred to by the term "pattern," relates to the number of shot fired from a particular shotshell which strike a target at a given distance within a given area and to the uniformity of distribution of the shot within the area. Certain standards of distance and target size consistent with a predetermined shotshell design have been established and serve as criteria by which shotshells are judged.

The present invention is also disclosed in a co-pending application, Serial No. 602,285, now Patent No. 2,842,057, filed by Hugh Dunn, entitled "Shotshell" and relates to the solution of a dispersion pattern problem which is more bothersome with metallic shotshells than with paper shotshells.

Reference is specifically made to mutilation of the shot within a metallic shell which occurs upon firing the shell. It is well known that at the time of firing a shell, rapid burning of the powder charge causes a forward thrust on the shot column; a component of this thrust is in turn exerted in a radially outward direction against the interior of the metallic shell casing. Shells formed of metallic material, such as aluminum, are substantially non-resilient (as compared to paper) with the result that the relatively soft copper or lead shot are distorted and rendered non-spherical. In fact, some lead is frequently milled or scraped from the outer rows of shot leaving small deposits of lead behind in the interior of the metal shell casing. Obviously, such deformation of the shot results in poor and unpredictable patterns from shell to shell.

Accordingly, it is a particular object of the present invention to provide a metallic shotshell which exhibits improved pattern characteristics.

It is another object of the present invention to provide a metallic shotshell having a resilient partition disposed between the shot column and the interior metallic shell.

It is a further object of the present invention to provide a metallic shotshell in combination with a hollow, resilient cylindrical collar disposed immediately adjacent to the interior of the shell in the region normally occupied by the shot column.

It is still a further object of the present invention to provide an aluminum shotshell having a partition or collar member comprising a relatively thin wall of polyethylene sandwiched between the shot column and the interior of the shotshell.

Another object of the present invention is the provision of a protective covering about the side wall area of the shot column effective as the column passes along the gun barrel to preclude deformation of the shot by the interior of the barrel.

A shotshell embracing certain features of the present invention may comprise an aluminum shotshell having an

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integrally formed head defining a one-piece structure, a primer assembly, a powder charge, filler wads, a shot column, and a partition of resilient thermoplastic material defining a hollow cylinder disposed between the shot column and the interior of the shotshell.

A complete understanding of the invention may be obtained from the following detailed description of a structure constituting a specific embodiment thereof when read in conjunction with the appended drawings, in which:

Fig. 1 is an elevational view of a metallic shotshell embodying the present invention with certain portions thereof broken away to show a tubular resilient collar;

Fig. 2 is a view of another embodiment of the resilient collar of Fig. 1;

Fig. 3 is a view of the resilient collar of Fig. 2 in sheet form and prior to rolling or furling into a hollow cylinder;

Fig. 4 is a view of a portion of Fig. 2 somewhat enlarged to show a butt type joint, and;

Fig. 5 is a view similar to Fig. 4 showing a lapped joint.

Referring now in detail to the drawings and in particular to Fig. 1, there is shown an aluminum shotshell indicated generally by the reference numeral 10 having a primer assembly, a powder charge (not shown), filler wad 11 and a shot column 12.

Since the present invention is not directed to the closure for sealing the open end of the shotshell, it is sufficient to state that any suitable closure such as a top wad 13 shown in Fig. 1 in combination with an inwardly turned flanged portion 14 may be utilized to enclose the top of the shell 10. Disposed between the shot column and the interior of the shell is a generally circular, seamless partition of polyethylene 16.

The partition may take the form of continuous hollow extrusion such as the tube 16 or may be cut from a sheet of material as shown as 17 in Fig. 3. The sheet is subsequently furled or rolled into a hollow cylinder with the ends terminating in a butt joint as at 18 (Fig. 4) or a lapped joint as at 19 (Fig. 5).

Although the partition may be in continuous or tubular form, it is preferred that it be completely severed throughout its full width, as shown in Fig. 2. Forming such a separation in the partition facilitates automatic discard of the partition member after the combined shot column and partition have left the barrel of the shotgun.

Upon firing the shell, the shot column is protected from mutilation by the resilience of the annular partition or collar. This is evidenced by the occurrence of a plurality of depressions or dimples upon the interior of the collar. The column is also protected from mutilation which would otherwise occur as the shot moves down the barrel wherein the collar remains encircled about the shot column until the shot leaves the barrel.

Tests have shown that metallic shotshells having polyethylene collars disposed about the shot columns thereof have demonstrated improved dispersion patterns as compared to the patterns of metallic shells assembled without the benefit of the resilient collar of the present invention.

For example, tests of aluminum shotshells which were in all respects identical except for the presence or absence of a polyethylene collar have demonstrated the following patterns when fired at forty yards towards a 30 inch circle.

Load:	Avg. pattern (percent)
(1) AL shell without collar	61
(2) AL shell with .02" (thick) polyethylene collar	68

It is to be understood that although the shotshell of the present invention embraces an aluminum shell and a polyethylene resilient collar, it is entirely within the spirit and scope of the invention to utilize any metal such as brass,

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bronze, copper or steel as the casing material and to utilize compounds of polyvinyl chloride, neoprene, Buna, ethyl cellulose or similar materials as the substance from which the collar is formed.

What is claimed is:

In combination, an aluminum shotshell having a cylindrical body and an integrally formed head portion defining a one piece structure; a generally tubular, open-ended partition member formed of resilient plastic material disposed within the shotshell immediately adjacent the body thereof and in the region generally occupied by a shot column, said member comprising a single sheet of material having opposed ends and furled into tubular form, said ends being in proximity to one another and free of physical attachment, said member being operative to pro-

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tect the shot against deformation while emerging from said shotshell and from a shotgun and being further operative to unfurl and fall free of the shot column as it proceeds from the muzzle of the gun.

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