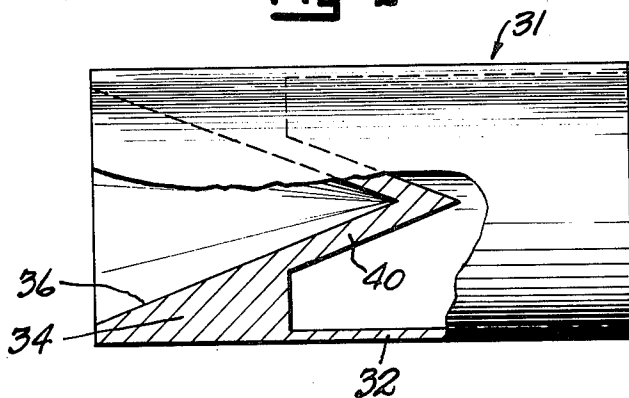


3,261,282

Filed July 31, 1964



ATTORNEY

1

3,261,282

SHOT SHELL

Grover E. Hendricks, 2241 Lake St., Niles, Mich.

Filed July 31, 1964, Ser. No. 386,633

6 Claims. (Cl. 102-42)

This invention relates to improvements in shot shells for use in shotguns, and more particularly to a shot shell having a plastic casing.

The primary object of this invention is to provide a novel shot shell having a plastic casing and a plastic molded wad defining spaced powder and shot compartments of novel shape, wherein the wad is snugly mounted within the shell casing and is removable to accommodate reloading of the shell casing.

A further object is to provide a novel shot shell wad having a cup shape with a recessed end cooperating with a shell casing to define a powder compartment.

Other objects will be apparent from the following specification.

In the drawing:

FIG. 1 is a longitudinal axial sectional view of a shell embodying my invention;

FIG. 2 is a side elevational view of the novel shot shell wad with parts broken away; and

FIG. 3 is an end view of the shot shell wad.

Referring to the drawing, the numeral 10 designates a shot shell casing which is molded from plastic material as an integral one piece structure having a tubular part 12 and an end wall 14. The shell casing may be formed of various materials, such as polyethylene, polycarbonate, cellulose ester, nylon, or other materials which may be injection molded. If desired, the material of which the shot shell casing 10 is formed may contain reinforcement, such as fiber glass. A circular flange or bead 16 is formed at the closed end of the shell to position the shell properly within the gun barrel.

The shell casing is characterized by a shallow central recess 18 at the outer face of the end wall 14 by a central passage 20 extending through the wall 14 and adapted to mount a conventional primer pin or cap 22 with a snug or press fit. The primer pin 22 has an enlarged head or flange 24 within the recess 18 and preferably projects slightly from the inner end of the passage 20. The end wall 14 is preferably of substantial thickness, being characterized by a recessed inner surface 26 which preferably is frusto conical in contour. If desired, the inner surface 26 is interrupted by one or more deep narrow grooves 28 arranged to extend around the central passage 20 and to define therein an inner collet portion 30 surrounding the inner end of the primer pin 22. Preferably one endless circular groove concentric with the passage 20 is provided at 28 with a plurality of arcuate grooves 28 may be utilized to outline the inner collet portion 30. This shell casing is substantially of the construction illustrated in my co-pending application, Ser. No. 370,244, filed May 26, 1964.

A performed cup-shaped wad member 31 is inserted in the shell casing 10. The wad member 31 is preferably injection molded and may be formed of various materials, such as polyethylene, polycarbonate, cellulose ester or nylon. If desired the molded wad member may contain reinforcement, such as fiber glass. The cup-shaped member 31 has a cylindrical wall 32 having an elongated cylin-

2

drical outer surface adapted for a snug sliding fit within the bore of the shell casing 12, for which purpose it preferably will have a clearance of a few thousandths of an inch only within the bore of the shell casing. The end wall 34 of the wad member is comparatively thick and confronts the end wall 14 of the shell casing. In the pre-formed form, the end wall is preferably conical, having a conical outer recess 36 cooperating with the inner recessed face of the end wall 14 to define a compartment containing powder or propellant 38. The end wall provides a deep recess whereby a conical portion 40 thereof projects into the cavity of the wad, as best seen in FIGS. 1 and 2. Cylindrical wall 32 is preferably of thinner section than the conical end wall part 40 and is of substantially uniform thickness.

Shot members 42 are inserted in the shell casing 12 within the cylindrical wall 32 in an outer chamber or compartment defined by end wall 34 and conical end wall portion 40 and by inwardly crimped parts 44 of the shell casing at its free end, as seen in FIG. 1.

In order to insure that the wad 31 is freely insertable in the shell casing and removable therefrom, it is provided with a surface of Teflon. The Teflon may either constitute a thin coating or it may be surface impregnated at the outer wall of the cylindrical part 32 of the wad, as by rolling the wad or tumbling the wad in Teflon powder. By this means friction between the wad and the shell is reduced and at the same time the powder or propellant is substantially sealed in the shell casing in contact with the inner end of the primer pin 22.

A shell using a wad of this character is particularly well suited for repeated reloading and reuse. It possesses long life and resistance to wear and makes possible reloading by removal of the wad, charging the shell with a measured amount of powder, whereupon the wad is inserted in place, the shell is filled with shot and crimped at 44.

While the preferred embodiment of the invention has been illustrated and described, it will be understood that changes in the construction may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. A shot shell comprising

a molded synthetic resin cup-shaped shell casing having a tubular part and an end wall with a central aperture mounting a primer cap,

said end wall having a recessed inner surface surrounded by an annular shoulder,

a molded synthetic resin cup-shaped wad snugly slidable in said shell casing and having a tubular part and an end wall,

said wad end wall having an annular portion complementary to and adapted to abut said end wall shoulder and surrounding a recess at its outer face adapted to confront and cooperate with said recessed shell casing end wall to define powder compartment, a charge of powder confined in said powder compartment,

a concentric projection on the inner face of said wad end wall spaced from encircled by and of shorter length than said tubular wad part and including a conical free end portion,

said tubular shell casing part being crimped inwardly at its free end to define a shot retaining chamber, and

3

shot in said cup-shaped wad and tubular shell casing surrounding said wad inner projection and confined by said inwardly crimped shell casing part.

2. A shot shell as defined in claim 1, wherein the outer surface of the tubular part of said wad is at least partially formed of Teflon. 5

3. A shot shell as defined in claim 1, wherein the inner face of said shell casing end wall is recessed, said recessed end walls of said shell casing and wad being at least partly conical. 10

4. A wad as defined in claim 1, wherein said tubular part of said wad is thinner than said end wall.

5. A wad as defined in claim 1, wherein said end wall recess of said wad is substantially conical. 15

6. A shot shell as defined in claim 1, wherein said shell casing end wall inner surface is interrupted by at least one deep narrow groove extending around

4

at least part of said central aperture to define a collet portion at least partly surrounding said primer pin.

References Cited by the Examiner

UNITED STATES PATENTS

2,972,947	2/1961	Fitzsimmons et al. ----	102—43
3,125,924	3/1964	Mayer et al. -----	102—43
3,147,709	9/1964	Werner -----	102—42

FOREIGN PATENTS

1,140,147	2/1957	France.
1,255,993	2/1961	France.
1,262,557	4/1961	France.
1,269,200	7/1961	France.

BENJAMIN A. BORCHELT, *Primary Examiner.*

R. F. STAHL, *Assistant Examiner.*