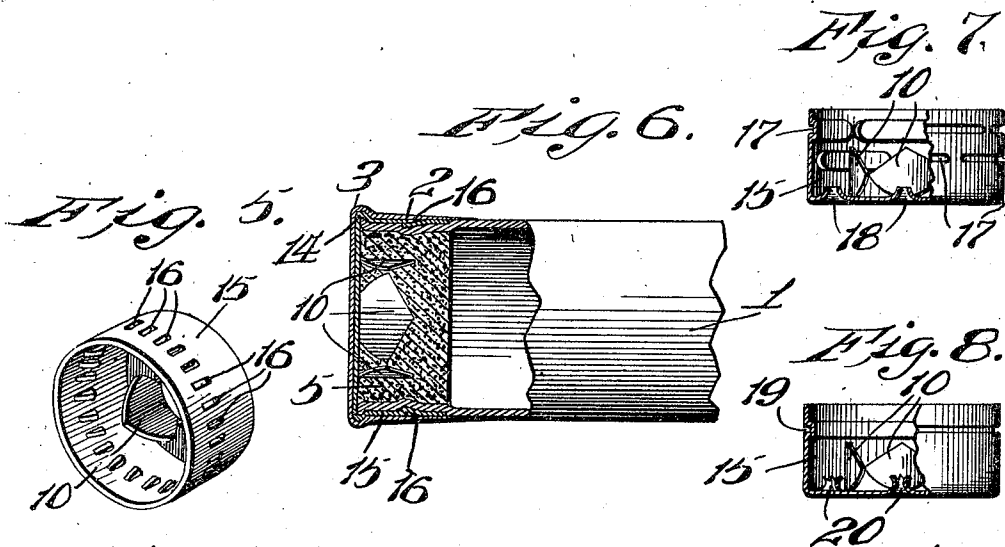
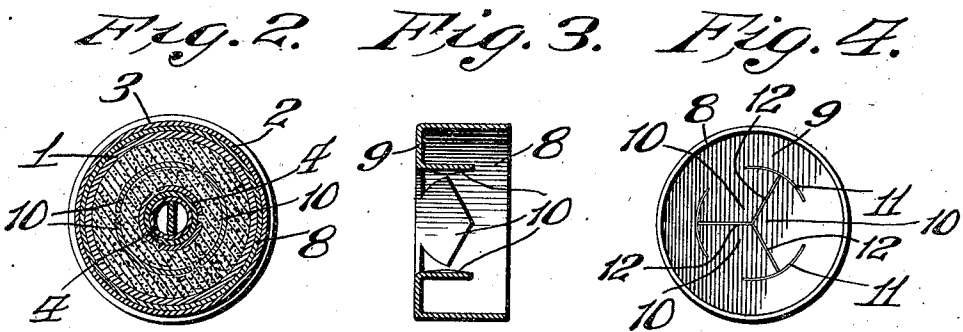
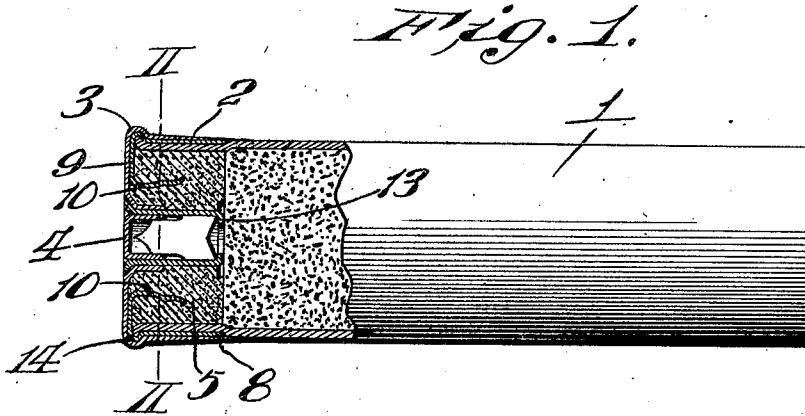


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CARTRIDGE.
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UNITED STATES PATENT OFFICE.

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CARTRIDGE.

1,002,038.

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To all whom it may concern:

Be it known that I, ROBERT G. CLYNE, a subject of the King of Great Britain, residing at Upper Alton, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Cartridges, of which the following is a specification.

This invention relates more especially to that class of cartridges commonly termed paper shot shells, and has for its primary object to provide improved means for securing the shell to the cap.

A further object is to provide improved means for anchoring the basewad in position within the cap.

More specifically stated, the main object of the present invention is to provide an improved combined basewad anchor and cap reinforce by means of which the cap and shell are inseparably connected while at the same time providing an improved gas-tight joint between the base wad and the percussion cap.

Another object is to provide an improved device of this character which will permit the several parts to be readily assembled in manufacturing the shells.

Other and further objects will appear in the specification, and be specifically pointed out in the appended claims, reference being had to the accompanying sheet of drawings exemplifying the invention, and in which—

Figure 1 is a side elevation of a cartridge shell, partly broken away to show the interior construction thereof. Fig. 2 is a transverse section on the line II—II, Fig. 1. Fig. 3 is an axial section of the wad anchor or reinforce. Fig. 4 is a plan view of the same, showing the method of constructing said anchor. Fig. 5 is a perspective view of a modified form of the anchor. Fig. 6 is a fragmentary side elevation of a shell, partly broken away to show the application of the embodiment shown in Fig. 5. Fig. 7 is a side elevation partly broken away of a modified form of the reinforce and anchor. Fig. 8 is a similar view of still another modification.

Referring more particularly to the drawings, in which like reference characters refer to the same parts wherever they occur, the embodiment shown in Figs. 1 to 4, inclusive, comprises a paper shell 1 provided

with a head or base cap 2, which is secured to said paper shell in the improved manner to be hereinafter referred to. The head cap 2 is provided with the usual peripheral flange 3 for holding the cartridge in position within the breech of a gun barrel while the flat end wall of said cap is provided with the usual central aperture formed by a hole punched therein for the reception of a battery cup 4 of well known construction. Interposed between the battery cup 4 and the cylindrical wall of the cap 2 and extending around the former, is the base wad 5.

According to Figs. 3 and 4, the anchor is exemplified in an integral piece of sheet metal, which is first stamped as shown in Fig. 4 to provide an outer cylindrical wall 8, end wall 9 and a plurality of baffles or wings 10, said wings being preferably formed, as indicated in Fig. 4, by stamping in the end wall of the anchor a plurality of segmental slots 11 and radial slots 12 meeting at the center, the partially severed portions between said slots being then forced inwardly in the manner shown in Fig. 3 to form the wings 10 approximately diamond-shaped. The wings 10 being circularly bent, their pointed ends adapt them to be inserted between contiguous folds of the base wad roll before it is compressed home into permanent position.

Referring again to Fig. 1, the wings 10 being inserted into the base wad 5 in the manner indicated, and the shell 1, cap 2 and base wad 5 being assembled with the cylindrical wall 8 interposed between the inner cylindrical wall of the shell 1 and the cylindrical wall of the cap 2, the pressure to which the base wad is subjected to compress it, buckles the wings in a manner corresponding to the way in which the layers of the base wad are caused to flow under compression. It will be seen therefore that the anchor becomes securely interlocked with the compressed base wad by means of the crinkled wings 10. The base wad 5, is furthermore interlocked with said wings by reason of its flow under compression which forms a solid mass of the wad extending through the wedge-shaped spaces under the points of the wings 10. When the parts are forced together, as shown in Fig. 1, the anchor has formed thereon an annular shoulder 14 which fits within the recess formed within the flange 3 on the head cap 2. The anchor is, therefore,

positively interlocked with the head cap, and consequently very effectually locks the base wad to the cap 2. The anchor may be adapted to more positively engage the tubular shell 1 in various ways, one of these being illustrated in Figs. 5 and 6 and consisting in providing the outer wall 15 with a plurality of depressions or indentations 16, said depressions being formed to permit the end of the shell to slide freely thereover while being inserted but acting as a hook to prevent its withdrawal. The view shown in Fig. 6 is broken away on a section to one side of the battery cup and shows the wings 15 10 in elevation.

According to the modified form of the anchor shown in Fig. 7, the shell engaging projections are formed by stamping a plurality of disconnected annular depressions 20 in the outer cylindrical wall, said recesses being arranged preferably in two series so as to overlap in such a manner as to form an effective baffle entirely around the periphery of the cup-shaped anchor. In this embodiment, means for engaging the base wad are provided by the inwardly contracted hollow protuberances 18 which are open at their inner ends to permit portions of the wadding to be compressed thereinto and expanded therewithin to interlock therewith. In the modification shown in Fig. 8, the shell engaging protuberance is formed by a groove 19, which is stamped in the outer cylindrical wall of the anchor. In this modification, the wad-engaging means is provided by a plurality of open-ended hollow protuberances 20 with star points opening laterally to grip the material of the base wad.

The advantageous features of my improved cartridge will now be appreciated from the following brief statement:—The cup-shaped reinforce or anchor is expanded around its peripheral corner within the annular flange or shoulder 3 of the cap, thereby securely locking the cap and anchor together. The base wad being in turn securely locked to the reinforce or anchor, is in consequence firmly secured to the cap 2, thereby making it practically impossible for it to be dislodged during the discharge of the gun. A further very important feature resides in the interlocking connection between the inner end of the tubular shell 1 and the outer cylindrical wall of the reinforce or anchor which prevents absolutely the separation, so common in devices of this kind, between the paper shell and the cap. The outer cylindrical wall of the reinforce or anchor, of course, serves strongly to reinforce the inner end of the paper shell and effectually prevents, in the event of an imperfect fit between the shell and the gun bore, the cylindrical wall of the cap being expanded permitting a rupture of the paper shell. By this means, therefore, the parts being se-

curely held together in their relative positions, the escape of gases is effectually prevented and all of the disadvantageous features attending the occurrence of a flare back or rupture of the shell are obviated.

What I claim is:

1. As an article of manufacture, an anchor for cartridges comprising an outer cylindrical wall having protuberances on the inner face thereof, an end wall, and portions projecting inwardly from said end wall.
2. An anchor for cartridges comprising an outer cylindrical wall with protuberances on the inner face thereof, an end wall with a central aperture therein, and a plurality of wings projecting from said end wall and disposed about said aperture.
3. An anchor for cartridges comprising an outer cylindrical wall with protuberances on the inner face thereof, an end wall with a central aperture therein, and a plurality of wings projecting from said end wall and disposed about said aperture, said wings being enlarged inwardly from said end wall.
4. An anchor for cartridges comprising an outer cylindrical wall with protuberances on the inner face thereof, an end wall with a central aperture therein, and a plurality of wings projecting from said end wall and disposed about said aperture, said wings being enlarged inwardly from said end wall and provided with pointed ends adapting it to be inserted between adjacent layers of a base wad.
5. An anchor for cartridges comprising an outer cylindrical wall, an end wall, and a plurality of wings projecting from said end wall within said cylindrical wall, said wings being enlarged inwardly from said end wall.
6. An anchor for cartridges comprising an outer cylindrical wall, an end wall provided with a central aperture, and a plurality of wings projecting from said end wall and disposed between said aperture and the cylindrical wall, said wings being enlarged inwardly from the end wall and provided with pointed ends.
7. In a cartridge, the combination with a head cap provided with a peripheral flange, of an anchor provided with an annular shoulder expanded within the recess formed in said peripheral flange, said anchor being provided with an outer cylindrical wall lying close against the cylindrical wall of said head cap and the cylindrical wall of the anchor being provided with projections on its inner face, a tubular shell engaged by said projections, and a base wad compressed within the inner end of said shell and holding said inner end of the shell in locking engagement with the projections on the cylindrical wall of said anchor.
8. In a cartridge, the combination with a head cap, of a cylindrical shell having one end inserted into said head cap, a battery

cup centrally disposed within said head cap, a base wad interposed between said battery cup and the inner end of said shell, and an anchor having a cylindrical wall interposed
5 between said head cap and one end of said shell.

9. In a cartridge, the combination with a head cap provided with a peripheral flange, of a battery cup centrally disposed within
10 said cap, an anchor provided with an annular shoulder expanded within the recess formed in said peripheral flange of the head cap, said anchor extending around the battery cup and having projections on the inner cylindrical wall thereof, a tubular shell
15 engaged by said projections, and a base wad locked to said anchor, said base wad being compressed into the space between the battery cup and that portion of the tubular shell
20 adjacent the projections on said anchor.

10. In a cartridge, the combination with a head cap provided with a peripheral flange and an interior recess within said flange, of
25 an anchor provided with a shoulder interlocking in said recess and having an outer cylindrical wall extending around the inner

cylindrical wall of said cap, the inner wall of said anchor being provided with protuberances, a battery cup centrally disposed within said head cap, and a tubular shell
30 having one end disposed within the cylindrical wall of said anchor over said protuberances, and a base wad interlocked with a portion of said anchor, said base wad being
35 compressed between said battery cup and the inner end of said tubular shell to force it into locking engagement with said protuberances.

11. In a cartridge, the combination with a head cap, of a cylindrical shell having one
40 end inserted into said head cap, a battery cup centrally disposed within said head cap, a base wad interposed between said battery cup and the inner end of said shell, and an anchor having a cylindrical wall interposed
45 between said head cap and inner end of said shell, and a portion embedded within said base wad.

ROBERT G. CLYNE.

In the presence of—

HARRY H. KINNON,
S. P. GLEIBER.