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J. J. HALLORAN

1,518,920

PROJECTILE

Filed Nov. 4, 1920

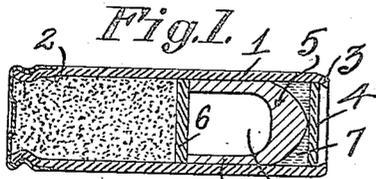


Fig. 3. 5<sup>1</sup> 5<sup>2</sup>

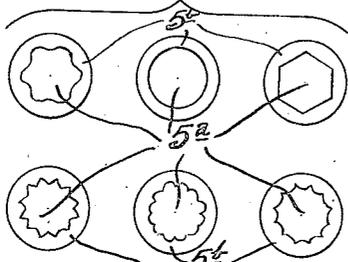


Fig. 5.

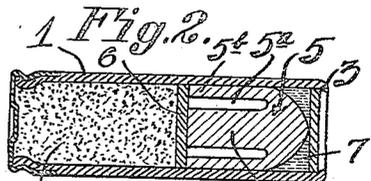


Fig. 4. 5<sup>1</sup>

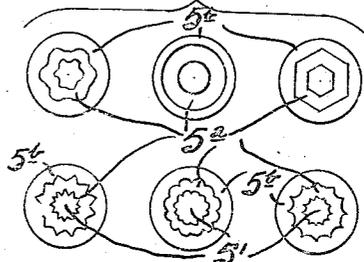


Fig. 6.

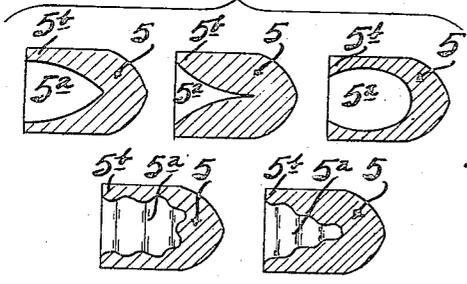


Fig. 7.

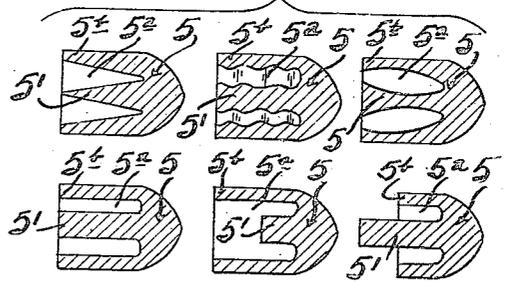


Fig. 9.



Fig. 8.

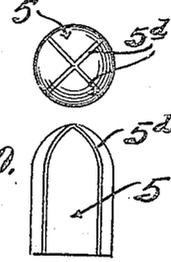


Fig. 10.

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# UNITED STATES PATENT OFFICE.

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## PROJECTILE.

Application filed November 4, 1920. Serial No. 421,692.

*To all whom it may concern:*

Be it known that I, JOHN J. HALLORAN, a citizen of the United States, and resident of Daly City, county of San Mateo, State of California, have invented a new and useful Projectile, of which the following is a specification.

The present invention, while relating in general to projectiles, has reference more particularly to a missile or bullet for smooth bore firearms.

In its preferred form the invention contemplates a projectile which may be used in connection with a more or less conventional type of shot cartridge as commonly used as ammunition for a shotgun, the bullet in this instance taking the place of the customary shot pellets.

The invention possesses several features and advantages which will be referred to in the following detailed description and with reference to the various illustrative examples included in the accompanying drawing.

In said drawing Figure 1 is a longitudinal section of a cartridge illustrating the application of one form of the invention; Figure 2 is a similar view illustrating the application of another form of the invention; Figure 3, end views showing various examples of cavities which may be made in the projectile as, for instance, in connection with the form shown in Figure 1; Figure 4 is a similar view showing other forms of cavities including a core corresponding to the form shown in Figure 2; Figure 5 is a longitudinal section showing the various shapes of cavities and Figure 6 is a similar view showing various other shapes of cavities including cores. Figure 7 is a view of the nose of a projectile illustrating the application of one form of groove which will enable the projectile to revolve by its own inertia; Figure 8 is a side view in elevation showing the grooves referred to in connection with Figure 7 as extending along the sides of the projectile; Figure 9 is a view similar to Figure 7, but showing a different shaped groove, and Figure 10 is a view similar to Figure 8, but showing a different type of groove.

Referring now to the drawing in detail, the invention may be made in various shapes, forms, and including different structural details, but for the purpose of illustration a few examples are shown, and con-

sidering first Figures 1, 3 and 5, together with Figures 7 to 10 inclusive, it is preferred to use the projectile or bullet with a cartridge which may be used with a shotgun of any one of the standard gauges, to which end a shell (1) may be made of paper or, if desired, metal jacketed, having the customary charge of powder (2) with its open end crimped as at (3) to confine the wad (4) in place so that the bullet (5) may be confined within the shell in the space between the wadding (4) and the wadding (6) which divides the powder charge.

According to the group of figures just referred to, the bullet (5) will be constructed with a relatively large cavity (5<sup>a</sup>) which is provided axially of the bullet to leave a relatively thin annular wall (5<sup>b</sup>) throughout that part of the length of the bullet which has a contact with the bore of the gun.

The nose of the bullet, as is customary in heretofore known types may have either a sharp or a blunt point, may either be solid, patched, metal-jacketed, or otherwise constructed, such for instance as with mushrooming devices or the like.

The cavity (5<sup>a</sup>) may remain unfilled, or if desirable the same may be filled with material such, for instance, as compressible wadding, paper, rubber, fibre, leather, felt, wood, stone, or any other non-metallic substance, and in this connection, when filled the material constituting the filling may take the place of the wadding (6).

The form or shape of the cavity (5<sup>a</sup>) may be made in any desirable figuration, such as the examples shown in Figures 3 and 5.

So far as concerns the nose of the bullet, or the outer circumference of the same, it may be either plain or provided with spiral grooves (5<sup>c</sup>) on its nose which will not extend along the length of the same, or if desirable they may be continued as shown in Figure 8, or instead of continuing the spiral grooves (5<sup>c</sup>) along the circumference or length of the bullet, they may be straight, and in this connection attention is directed to Figures 9 and 10, in which the grooves (5<sup>d</sup>) are shown as straight on the nose as well as the body. This showing, however, should not be confused as limiting the invention to extending the grooves straight on both the nose and the length of the bullet, as the grooves may be straight on the nose and spiral on the body, or vice versa.

The object in using the grooves is to re-

alize a self-twisting movement by the inertia of the bullet during its trajectory.

Considering Figures 2, 4 and 6, in connection with Figures 7 to 10 inclusive, it is to be noted that while the bullet (5) also includes a cavity (5<sup>a</sup>) and a thin annular wall (5<sup>b</sup>) and, further, that the shape of the cavity (5<sup>a</sup>) may be in any desired figuration as in the case of the previous figures, this form also includes a core (5') which may be arranged either as an integral part of the bullet or as an attached element. The core (5') is arranged to be surrounded by the cavity (5<sup>a</sup>) and the circumference of the core will preferably have the same shape as the inside circumference of the cavity. This is clearly shown in Figure 4.

The cavity in this embodiment may be filled as mentioned in connection with the cavity in the other embodiment.

By referring to Figure 6 it is to be noted that the core (5') is constructed with various dimensions, both as to length and thickness. In some instances the core may extend beyond the butt end of the bullet, or it may terminate within the cavity short of the butt. The grooves shown in Figures 7 to 10 inclusive and referred to in connection with the first embodiment, may be used in connection with the second embodiment with the same advantage.

Attention is now directed to Figures 1 and 2, in which it will be noted that a suitable lubricant (7) may be confined around the nose of the bullet within the cartridge by the wadding (4), so that when the bullet is fired through the bore of the gun the lubricant will grease the bullet and reduce friction to a minimum.

The nose of the bullet in the last described form may be either patched, solid, or metal-jacketed or otherwise constructed, as in the case of the first mentioned form.

The use of the projectile is particularly adapted to tapered bore guns, and in this connection the relatively thin walls (5<sup>b</sup>) will permit the diameter of the gun bore to pinch the walls of the projectile so that the same will not jam or be retarded in its travel through the gun barrel.

I claim:

A projectile for a choke bore gun having a solid nose and a cylindrical body consisting of a relatively thin deformable shell having an open-ended cavity commencing in the nose so that the entire cylindrical body readily adjusts itself to the various diameters of the tapered bore, and a central core attached to the nose of such a diameter as to remain out of contact with the shell.

JOHN J. HALLORAN.