Feb. 15, 1944. L. W. MOORE 2,342,006

PROJECTILE DEVICE

Filed Jan. 19, 1942

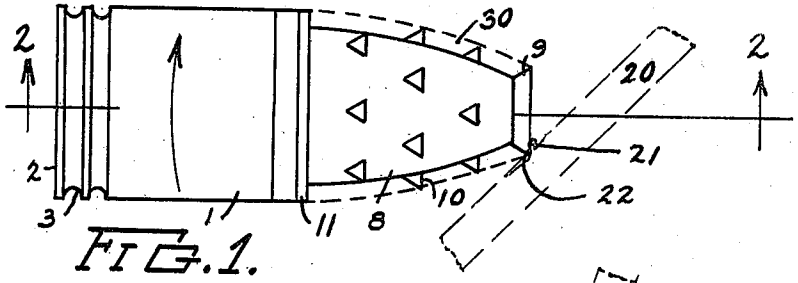


FIG. 1.

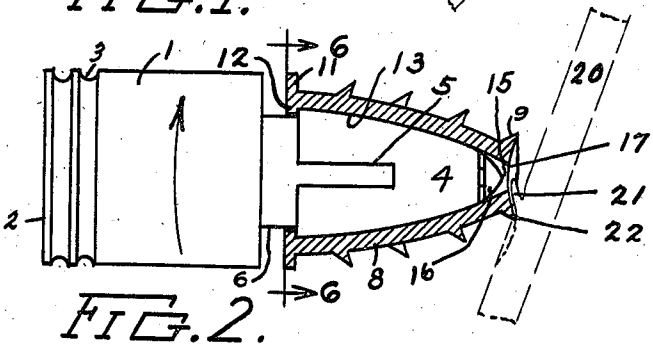


FIG. 2.

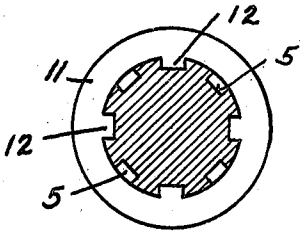


FIG. 6.

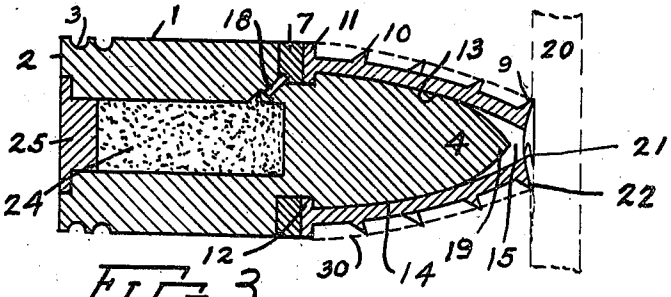


FIG. 3.

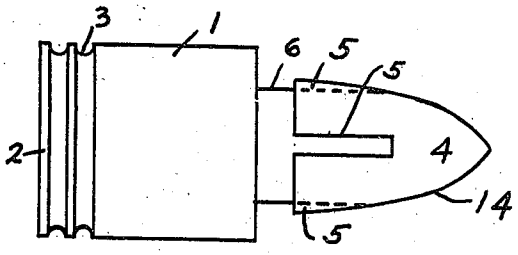


FIG. 4.

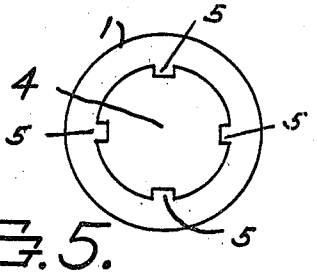


FIG. 5.

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PROJECTILE DEVICE

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2 Claims. (Cl. 102—52)

This invention relates to ordnance and more particularly to projectiles for use to pierce armor plate normally set at an angle to the vertical. It has among its objects to provide a projectile of the type referred to, that will be effective against plates or other armor positioned at an angle, such as encountered in the armored walls of tanks and the like. Another object is to have the nose surface of the projectile provided with sharp edged cutting projections which cut into the face of the armor plate struck and dig into same in such a way as to prevent the projectile from ricocheting or glancing off the face of the plate. Another object is to provide the projectile with fins which engage the surface of the plate and by reason of their resistance on one side and lack of resistance on the other cause the projectile to assume a position approximately at right angles to the face of the plate and make the projectile more effective. Another object is to provide a projectile with a hardened attachable nose which will bring the projectile into effective alignment to the face of the object to be struck. Another object is to provide a projectile with a nose of such construction that it will tear into the object and considerably dislodge material thereof and more so than has hereto before been possible, due to its peculiar arrangement of contact surface. Another object is to provide a projectile of the contact explosive type, with a protective covering to prevent its explosion prematurely. Another object is to have the projectile arranged as a double explosive type utilizing its contact operating arrangement to explode the projectile. Another object is to provide a projectile having its protruding fins filled with a softer material sufficient to present a smooth and safe surface for handling purposes but which will not prevent the fins from being as fully effective.

Other objects will become apparent as the invention is more fully set forth.

In the drawing which illustrates an embodiment of this invention:

Figure 1 is a side view of a projectile with attachable nose, embodying this invention, shown contacting the angular surface of the objective,

Figure 2 is a view partly in section taken along line 2—2 of Figure 1, showing the attachable nose in position on an explosive projectile of the front end firing type, before the spacing filler has been applied and showing the attachable nose slightly turned to lock same on the secondary nose, and showing the projectile slightly turned,

Figure 3 is a sectional view of slightly modified form of a similar projectile showing the general interior construction of an explosive projectile and newly located firing pin with filler in place between the rear end of attachable nose and shoulder, to prevent premature explosion, it also shows the projectile completely turned and ready to travel through the target,

Figure 4 is a side view of the projectile to show its general construction with the attachable nose and fillers removed,

Figure 5 is a plan view of Figure 4, and

Figure 6 is a transverse sectional view taken along line 6—6 of Figure 2.

Similar reference characters refer to similar parts throughout the drawing.

In the drawing, the device indicated is provided with a projectile body 1, having its rear portion 2 provided with grooves 3, for the rifle bore ring or shell connection. It has a secondary nose 4 provided with longitudinal side slots 5 which run parallel to the axis of the projectile and are used for the placement of the attachable nose 8. A recessed portion 6 is located adjacent the middle portion of the body 1, and is arranged to permit the attachable nose to be turned breechlock fashion out of line with slots 5 and anchored therein. The use of soft material 7, like lead, serves as a filler at this location. The attachable or false nose 8 is provided with a sharp cutting edged front ring 9, rasp teeth projections 10, and rear flange 11, having inner prongs 12. The attachable nose member 8, is hollow and its external contour curved and diminishing towards the front ring 9. The inner face 13 of the attachable nose is curved to fit the external curvature 14 of secondary nose 4 as indicated. This curvature is such as to provide a space 15 between the end 16 of the secondary nose and the end 17 of the attachable nose. A firing mechanism 18 connected with explosive medium 24 and body plug 25 is provided in the device as shown in Figure 3. The firing mechanism is operated through the pressure of the attachable nose on the secondary nose and the prongs 12 as they contact and operate firing mechanism. The end 19 of the secondary nose may be made solid. In Figure 2 the attachable nose contacts the target and is crushed back enough to cause the explosive end 16 to operate.

In the operation of the device, the sharp contacting front surface 9, hits and contacts the angular surface 20. The force of its striking causes it to bite into same, making the material 21 disgorge in a cutting that piles up and impedes the travel of the contacting edge 22. This causes the projectible to slow up at this edge and the body portion in the rear to continue on it as a center. This causes its course of travel to be in the direction shown by arrows in Figures 1 and 2. This contact by edge 22 with the angular surface 20 due to its momentum allows the end of the projectile 4 to press through the nose member and extend beyond the end 17 so as to hit and make full contact with the surface of

the object fired at. In the modified form shown in Figure 3, the contact by edge 22 with the angular surface 20 in addition to turning the projectile, forced the attachable nose back over the curved surface of the secondary nose until the prong 12 contacts and operates the firing pin 18. Should the projectile contact the armor plate at an angle the attachable nose through its rasp teeth projections 10 contact the angular surface 20 and dig into same. This retards the travel of the portions of the attachable nose closest to the angular surface and causes the projectile to turn enough to bring the edge 22 into contact with the angular surface 20 at right angles after which the operation continues the same as above described.

The projections 10 dig into the armor plate or material struck as the projectile is forced further in and serve several purposes

(1) They tear open the material;

(2) They force the attachable nose further back on the body and expose the latter more, and promote the latter's more effective action;

(3) They prevent the bullet piercing through material too quickly, and its explosion taking place after it has passed through same. In other words, it delays the projectile so it will explode in the armor plate itself and thereby do most damage.

(4) They act as a brake on the projectile if it should strike angularly and flatten it against the surface of the material so it will prevent ricocheting or glancing back or away from the same.

(5) They tend to make cuts in the material so it will crack far beyond the hole made by the explosion hole and thereby spread the action of the projectile over a larger area.

(6) The projections also serve to cause the attachable nose to break up at a certain point of travel and remove it from the projectile secondary nose so the latter will be less impeded during the moment of explosion.

The enlarged bottom portion of the projection coordinates with these actions.

A papier-mâché covering 30 is mounted over the attachable nose to allow it to be handled without damage or danger to the operator, keeps the points sharp and at the same time provides combustible material and acts as packing in the hole drilled by the bullet as it strikes an object.

While but two general forms of the invention are shown in the drawing, it is not desired to limit this application to these particular forms or in any other way otherwise than limited by this description, as it is appreciated that other forms could be made that would use the same principles and come within the scope of the appended claims.

Having thus described the invention, what is claimed is:

1. In combination with a projectile, a false nose member comprising a hollow shell internally adapted to fit over the external surface of the projectile nose portion and leave a space between the nose of the projectile and the shell, means for attaching the shell to the projectile, and a plurality of spaced individual rasp teeth mounted on the external surface of the said shell and projecting and pointing towards the nose of same for engaging and digging into the surfaces directed against.

2. In combination with a projectile, a false nose member comprising a hollow shell adapted to fit over the nose portion of the shell and allow a space between the front ends of both, a plurality of spaced individual rasp teeth mounted on the external surface of the member and projecting towards the front portion thereof for engaging surfaces directed at, and a covering on the external surface of the shell thick enough to cover the teeth yet resilient enough to give way and allow the teeth to cut into surfaces which the projectile is directed against.

LINDLEY W. MOORE.