F. H. CAMPBELL.

PROJECTILE.

APPLICATION FILED APR. 22, 1916.

1,201,935. Patented Oct. 17, 1916.

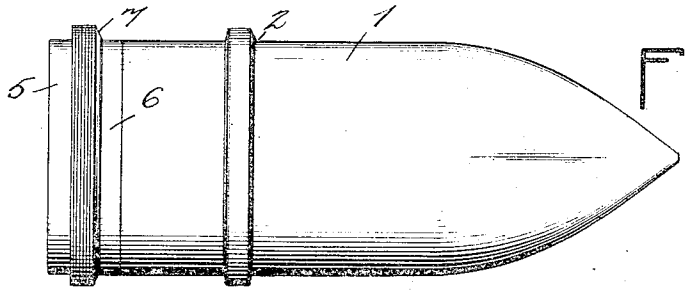


FIG. 1.

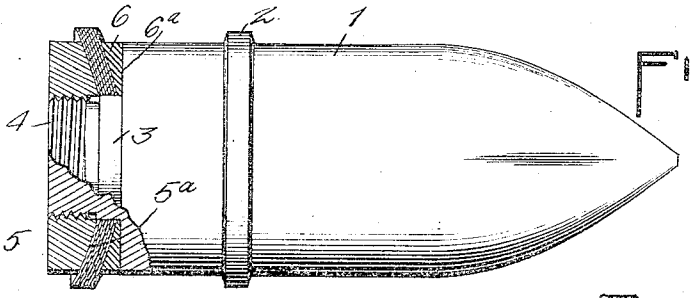


FIG. 2.

FIG. 3.

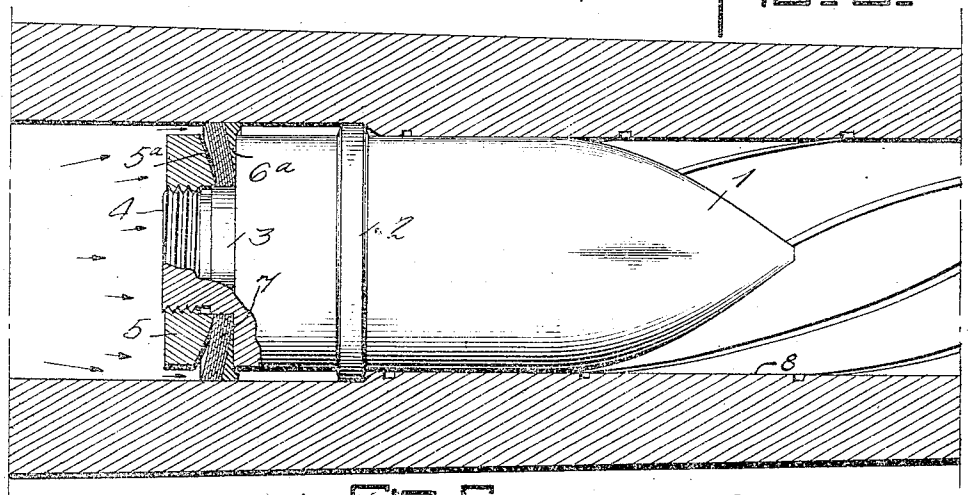


FIG. 5.

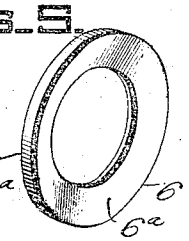


FIG. 6.

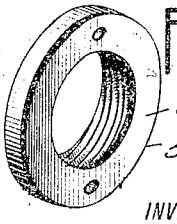


FIG. 4.

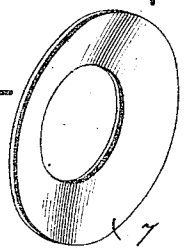
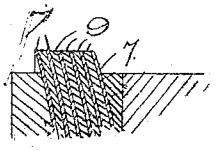


FIG. 7.



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PROJECTILE.

1,201,935. Specification of Letters Patent. Patented Oct. 17, 1916.

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To all whom it may concern:

Be it known that I, FRANK H. CAMPBELL, a citizen of the United States, and a resident of Lewisburg, in the county of Greenbrier and State of West Virginia, have invented a certain new and useful Improvement in Projectiles, of which the following is a specification.

My invention relates to improvements in projectiles, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a projectile having means which prevents the gases of the discharge from rushing past the projectile while the latter is in the bore of the gun.

A further object of my invention is to provide a projectile having means for holding the gases from the explosive charge back behind the projectile, while at the same time preventing undue erosion of the walls of the bore.

A further object of my invention is to provide a comparatively simple and cheap means for accomplishing the above named objects.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application, in which:

Figure 1 is a side view of the projectile. Fig. 2 is a side view, certain parts being shown in section. Fig. 3 shows a section through a portion of the gun with the projectile therein. Fig. 4 is a perspective view of one of the soft metal disks. Fig. 5 is a perspective view of the soft metal washer. Fig. 6 is a perspective view of the nut, and Fig. 7 is a sectional view of a modified form of the device.

The body of the projectile is shown at 1 and it is provided with the usual band 2 of soft metal such as copper. In the rear end of the body portion is provided a cylindrical extension having a cylindrical portion 3 and a threaded portion 4. This threaded portion 4 is provided with a left hand thread which is arranged to receive a nut 5 also provided with left hand threads.

A soft metal annular disk 6 is disposed on the cylindrical portion 3 of the extension. As will be observed, this disk has a flat side or face 6^a, the opposite face 6^b being dished so as to make the disk thicker at the outside edge than at the inside. A series of soft metal disks 7 is provided, these disks being preferably of copper and being dished as shown in Fig. 4. The nut 5 has a convex face 5^a, as shown, which fits against the concave face of one of the disks.

In assembling the device, the disk 6 is placed in position, after which the disks or rings 7 are slipped on the cylindrical portion 3 and the nut 5 is screwed on the threaded portion 4 so as to hold the parts in the position shown in Fig. 2. The projectile is now ready to be placed in the bore of a gun, such as that shown at 8. When the charge is fired, the gases force the soft metal disks 7 forwardly against the washer or disk 6 which tends to be mashed out of shape. This is increased by the tightening up of the nut 5 behind the disks 7, since the rotation of the projectile to the right which is caused by the rifling of the bore, will force the nut up against the disks 7. As will be seen from Fig. 3, the edges of the disks 7 as well as the soft metal washer 6, are in close contact with the walls of the bore 8, thereby preventing the rush of gases past the projectile. At the same time the fact that these parts are of soft metal tends to prevent undue erosion of the walls of the bore.

In Fig. 7 I have shown a modified form of the device in which lubricating material of any suitable composition may be placed between the copper disks 7, so that on each discharge the bore of the gun is lubricated. In lieu of the central spindle 3 a bolt may be used with a head of suitable size and a left hand thread, working with similar threads cut in the end of the projectile. In this form, the action of the head of the bolt on a copper or other metal disk would be the same as with the nut just described.

It will be seen that I have provided a projectile having a circular flange made up of the soft metal disks arranged to be expanded by the gases of the explosion into close contact with the interior walls of the bore, the expansion of the flange causing the expansion of the soft metal washer against the walls of the bore thereby coöperating with the flange in preventing passage of the gases past the projectile.

I claim:

1. The combination with a projectile, of an extension secured to said projectile at the

rear end thereof, said extension having a smooth cylindrical reduced portion adjacent to the body portion of the projectile, and a threaded end portion, a washer of soft metal carried by said reduced portion, said washer having a flat face disposed adjacent to the body portion of the projectile, the opposite face being dished, a series of annular disks of soft metal and of greater diameter than said washer, said disks being dished to conform with the dished face of the washer, and a nut having a convex face to engage one of the dished disks for forcing the said disks against said washer.

2. The combination with a projectile, of an extension secured to said projectile at the rear end thereof, said extension having a smooth cylindrical reduced portion adjacent to the body portion of the projectile, and a threaded end portion, a washer of soft metal carried by said reduced portion, said washer having a flat face disposed adjacent to the body portion of the projectile, the opposite face being dished, a series of annular disks of soft metal and of greater diameter than said washer, said disks being dished to conform with the dished face of the washer, and a nut on said threaded end portion for forcing said disks against said washer.

FRANK HOWARD CAMPBELL.