

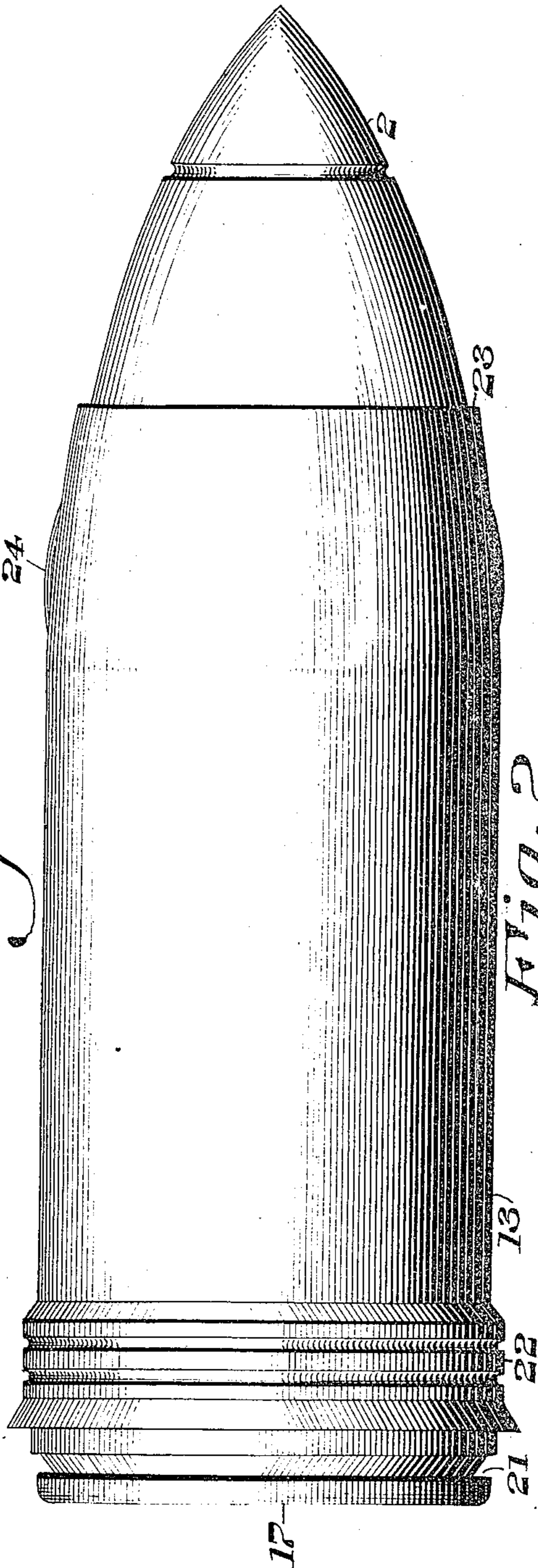
No. 874,282.

PATENTED DEC. 17, 1907.

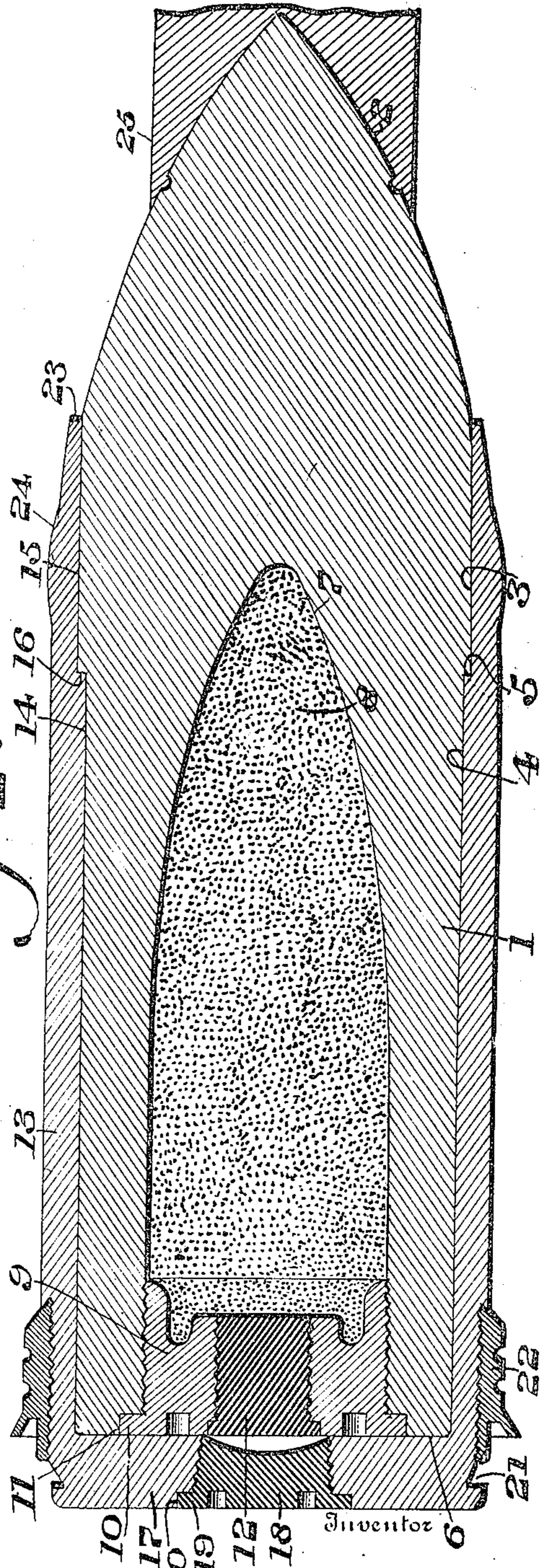
T. S. AVESON.  
PROJECTILE.

APPLICATION FILED JUNE 19, 1906.

*Fig. 1.*



*Fig. 2.*



Witnesses  
*P. F. Nagle.*  
*L. Douville.*

*Thomas S. Aveson.*  
By *Friederich Fairbanks.*  
*Attorney.*

# UNITED STATES PATENT OFFICE.

THOMAS S. AVESON, OF PASSAIC, NEW JERSEY.

## PROJECTILE.

No. 874,282.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed June 19, 1906. Serial No. 322,416.

*To all whom it may concern:*

Be it known that I, THOMAS S. AVESON, a citizen of the United States, residing in the city of Passaic, county of Passaic, State of New Jersey, have invented a new and useful Projectile, of which the following is a specification.

My invention relates to projectiles and consists of a novel construction of a projectile by the employment of which a greater penetration of the armor or target may be obtained with the same expenditure of power than is possible in the projectiles now in use.

It consists of a novel construction of a casing or jacket member, which is suitably secured to the projectile in such a manner that after the nose of the same has penetrated the armor or target, this casing will be stripped off, peeled off or removed in such a manner that if the projectile before being fired conformed to the dimensions of a six inch shell, after the casing had been stripped off, it would conform to the diameter of a five inch shell and the projectile will penetrate further into the target than if it were constructed in the ordinary manner.

My invention further consists of other novel features of construction, all as will be hereinafter fully set forth.

In carrying out my invention, the body of the projectile is preferably reduced in diameter and on this body is secured, in any suitable manner, a casing which is automatically removed from the projectile as the same penetrates the armor or other material.

In the accompanying drawing I have shown but one form of my invention, since this embodiment best illustrates the principle thereof, although the various instrumentalities of which my invention consists may be variously arranged and organized and although in the present instance I have shown, for the purpose of illustration, the preferred embodiment thereof, it is to be understood that my invention is not limited to this specific arrangement and organization of these instrumentalities.

Figure 1 represents a plan view of a projectile embodying my invention, but having the cap removed. Fig. 2 represents a sectional view of Fig. 1, but showing the cap in section.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates the body or core of a projectile having a tapered end 2 of the usual construction. The

core or body portion of the projectile is provided with an enlarged diameter 3 near the forward end thereof and contiguous thereto. 60 The diameter of the projectile is further reduced, as seen at 4, thus forming a shoulder 5, it being noted that the reduced diameter 4 extends to the end of the projectile body, which forms, as seen at 6, a substantially 65 plane surface.

7 designates a chamber within the projectile body 1 in which the explosive material 8 is located, said material being retained in place by means of a cap or closure 9 having 70 threaded or other engagement with the body portion 1 and provided with a flange 10, which is seated in an annular recess 11 in the body portion 1, the outer end of the closure 9 forming with the end of the body portion of 75 the projectile a substantially plane surface.

12 designates a time or percussion fuse which is carried by the closure 9 in the usual manner.

13 designates a casing or jacket having the 80 differential diameters 14 and 15 whereby the same is adapted to closely engage the differential diameters 3 and 4 of the body portion 1. The casing 13 is provided with an internal shoulder 16 which abuts against the 85 shoulder 5 of the body portion 1 when the parts are in assembled position. The casing or jacket 13 is provided, in the present instance, with a closed end 17 having a removable closure or plug 18 which has threaded 90 or other engagement therewith, although it is to be understood that it is sometimes advisable to omit this closed end.

19 designates a flange at the outer end of the plug or closure 18, which is adapted to be 95 seated in an annular recess 20 in the closed end 17.

21 designates an annular groove on the periphery of the end portion 17 of the casing members 13 in order that the shell may be 100 readily grasped and withdrawn from the gun.

22 designates a rotation band which is carried by the casing 13 and adapted to engage the rifling of the gun from which the projectile is to be fired. This rotation band is 105 exteriorly grooved and interiorly threaded to engage threads on the casing or jacket 13 so as to be removable therefrom, the forward end of the band engaging a shoulder in the casing at the forward end of the annular 110 groove in which the band is located so as to prevent forward movement of the band.

23 designates the forward end of the casing 13 which first engages the target after the nose of the projectile has penetrated the same.

24 designates a bourrelet or steadying band 5 on the outer periphery of the jacket 13 near the forward end thereof and preferably integral therewith.

25 designates the cap which is secured to the projectile in the usual manner.

10 For the purpose of illustrating more clearly the advantages derived by the employment of my construction of a projectile, I will now refer to the same as corresponding to a six inch shell, the weight of which is approximately 100 pounds. Before placing 15 the casing or jacket in position, the body or core of the projectile would be reduced in such a manner that it would correspond in diameter to a five inch shell, the approximate weight of the resultant mass being approximately 75 pounds and when the member 20 involving my invention is secured on the shell, the weight of the projectile would be approximately 100 pounds, or that of a six inch shell.

If we suppose a six inch shell weighing 100 pounds to be discharged from the gun at a speed of 2,000 feet per second, the force with which the projectile would strike the armor 20 or target would be 200,000 pounds. If a five inch shell were fired from the gun, the approximate weight of which is 60 pounds, and if this shell travels at a speed of 2,000 feet per second, it would strike the target with a 35 force of 120,000 pounds. It will be apparent that after the nose or converging forward end of the projectile has entered the object, the forward end 23 will engage the target or plate and owing to the force with which the 40 projectile is traveling, the outer casing 13 will be peeled off or removed therefrom. It will thus be apparent that without changing the dimensions in any manner of the gun, a deeper penetration of the target or plate by 45 the projectile may be obtained if the same is constructed according to my present invention. I preferably construct the body of the projectile of different diameters, since I have found that such a construction is adapted to 50 give a better result.

In my present construction, the rotation band is carried by the casing member so that when the projectile enters the object, it will not tend to hinder or obstruct in any manner 55 its passage thereinto or therethrough. Although I have for purpose of illustration referred to a six inch and a five inch shell, it will be apparent that my invention is adapted to be employed in connection with projectiles 60 of any dimensions.

The jacket 13 may be secured to the core 1 in any suitable manner. It may have a driving fit on the core. It may be shrunk on or keyed to the core, or it may be secured 65 thereon by suitable fastening devices, it

being apparent that as soon as the impact of the projectile against the target or plate takes place, the smaller the amount of force which is necessary to remove the jacket, the further the projectile will penetrate the target or plate. I wish to call special attention 70 to the removable closure 18 carried by the end 17 of the jacket 13. Owing to the provision of this closure the explosive charge 8 may be placed in its chamber 7 after the 75 jacket has been secured in place. The fuse 12 is also readily accessible whenever it is desired to examine or in any manner adjust the same.

It will now be apparent from the foregoing 80 that I have, in the present instance, produced a novel and useful construction of a projectile which embodies the features of advantage enumerated in the statement of invention and the above description, and 85 while I have, in the present instance, shown and described the preferred embodiment thereof, it is to be understood that it is susceptible of modification in various particulars without departing from the spirit and scope 90 of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:— 95

1. In a projectile, a core having differential diameters with an intermediate shoulder, an endwise detachable jacket having differential diameters with an intermediate shoulder, one end of said jacket being closed and 100 provided with a removable closure, and a grooved rotation band disposed in a shouldered recess in and carried by said removable jacket.

2. In a projectile a core having a converging 105 end, said core having differential diameters, and a jacket endwise detachably mounted on said core, the diameter of said jacket being greater than the greater diameter of said core, said core and jacket having inter- 110 engaging shoulders at the forward end of the projectile and the jacket having a steadying band on its outer periphery in advance of said shoulders.

3. In a projectile, a core; and a jacket 115 mounted on said core for endwise detachment by impact of the projectile, said core and jacket each provided with a removable closure at the rear end said core and jacket each having a shoulder adapted to abut at 120 the forward end of the jacket, said jacket having a steadying band in proximity to its shoulder, and a grooved rotation ring on the other end of said removable jacket and held in an annular groove therein. 125

4. In a projectile, a core, a jacket mounted on said core for endwise detachment by impact of the projectile, said core and jacket each having a shoulder adapted to abut at 130 the forward end of the jacket, said jacket

having an annular groove on the outer periphery thereof, and a removable grooved rotation band on said removable jacket forward of said groove and seated in an annular recess therein with its forward end engaging a shoulder to limit its forward movement.

5 In a projectile, a core, a jacket mounted on said core for endwise detachment by impact of the projectile, said core and jacket  
10 each having a shoulder adapted to abut at

the forward end of the jacket, said jacket having an annular groove on the outer periphery thereof, and a rotation band on said jacket forward of said groove, said jacket having a closed rear end, and a removable plug in said closed end.

THOMAS S. AVESON.

Witnesses:

JOHN A. WIEDERSHEIM,  
HERBERT S. FAIRBANKS.