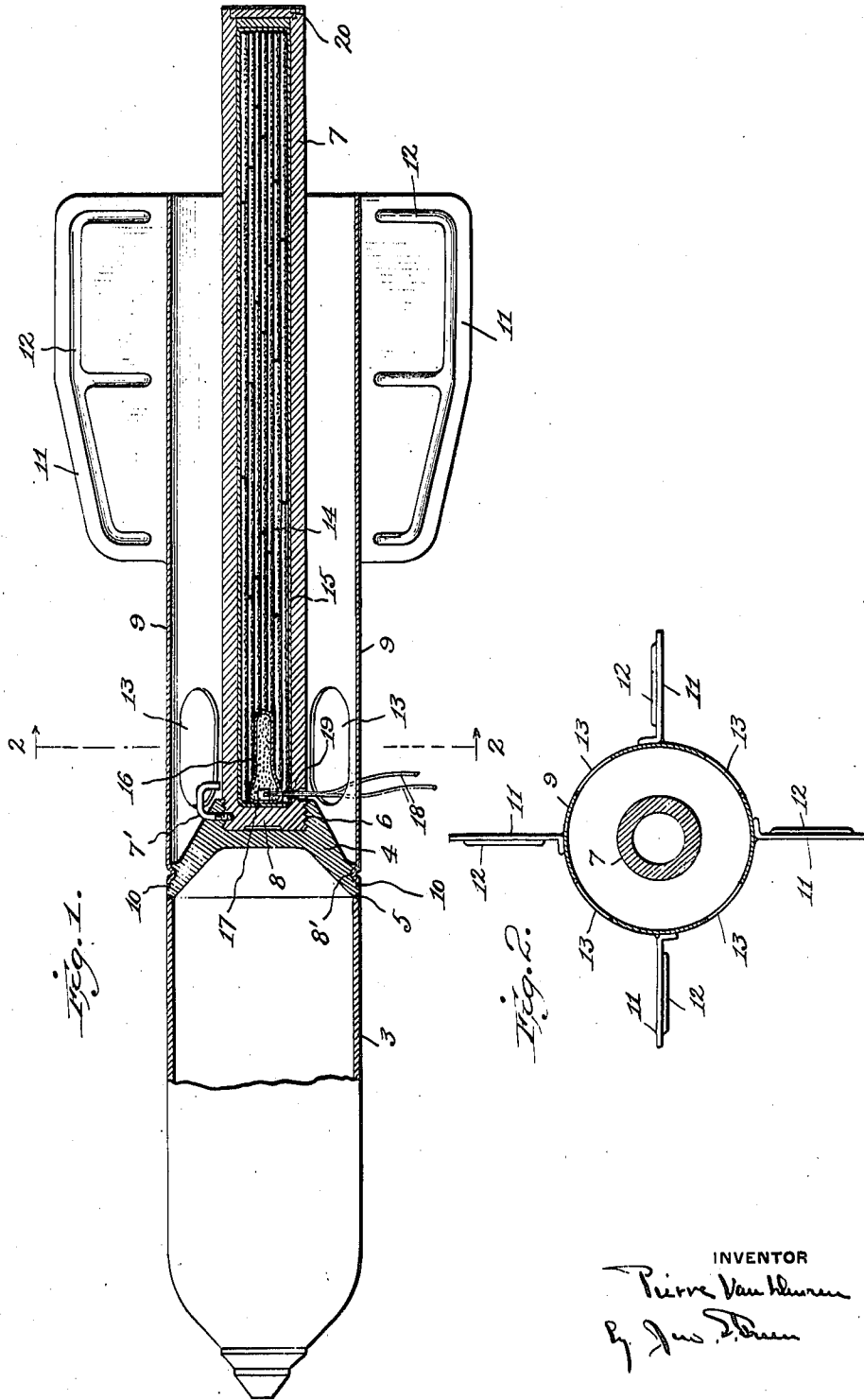


P. VAN DEUREN.
PROJECTILE.

APPLICATION FILED FEB. 4, 1919.

1,360,602.

Patented Nov. 30, 1920.



INVENTOR

Pierre Van Deuren
By J. D. Deuren

UNITED STATES PATENT OFFICE.

PIERRE VAN DEUREN, OF BRASSCHAET, BELGIUM, ASSIGNOR TO SOCIETE ANONYME
POUR L'EXPLOITATION DES PROCEDES WESTINGHOUSE LEBLANC, OF PARIS,
FRANCE.

PROJECTILE.

1,360,602.

Specification of Letters Patent. Patented Nov. 30, 1920.

Application filed February 4, 1919. Serial No. 274,901.

To all whom it may concern:

Be it known that I, PIERRE VAN DEUREN, a subject of the Kingdom of Belgium, Centre de L'Artillerie De Tranchée, Brasschaet, Province D'Anvers-Belgique, have made a new and useful Invention in Projectiles, of which the following is a specification.

In United States Letters Patent, 1,307,384 issued to Pierre Van Deuren, Albert Delas and Maurice Leblanc, on June 24, 1919, a certain type of cannon and a certain type of projectile for use therewith are shown and this invention relates to an improved projectile for use with cannon of said type.

An object of this invention is to provide an improved construction of projectile for use with the type of cannon shown in said patent.

In the drawings, Figure 1 is a view partially in elevation and partially in section of a projectile embodying this invention and Fig. 2 is a cross sectional view taken on line 2—2 of Fig. 1 looking in the direction of the arrows.

The projectile consists of a body or head portion 3 adapted to contain the explosive charge. The cylindrical walls of the body are united to the base 4 of the body portion by means of an acetylene weld 5. Base 4 is internally threaded at 6 and a tubular tail 7 having its forward end 8 closed as shown is externally threaded and screwed into the base portion 4. After being placed in position the base and the head of the tail are drilled and tapped to receive a threaded rod 7' for the purpose of locking the two parts securely together and the rod is then bent over into U form as shown in Fig. 1 to form a stop for limiting the distance to which the tail 7 is inserted within the bore of the cannon with which the projectile is to be used. Base portion 4 of the body is provided with an annular groove 8' into which one end of a sheet metal tube 9 is crimped. Sheet metal tube 9 besides being secured to base 4 by the crimping of the tube is oxyacetylene welded at 10 to the base portion.

To the outer end of tube 9 four radially disposed vanes 11 are secured preferably by oxyacetylene welding. Vanes 11 are stiffened and strengthened by having grooves 12 pressed therein which form stiffening ribs on one side of the vanes and grooves on the other. The tube 9 near its

inner end is provided with four oval shaped openings 13. The hollow tail 7 contains a propelling charge of powder 14 which is preferably contained within a suitable fabric bag 15. A small bag 16 of black powder is inclosed within the inner end of bag 15 and is surrounded by the inner end of the propelling charge. An electric cap 17 buried within the black powder charge is connected by means of wires 18 which pass through a small opening 19 near the inner end of tail 7 and are connected with a suitable electric device for igniting the black powder charge. The propelling charge is secured within the tail by means of a suitable cardboard wad 20.

In this construction shell 9 is extremely rigid and forms a protection for the tail during its transportation and handling and gives it stability in the air. Shell 9 which extends around the barrel of the cannon allows the vanes 11 to be placed at the extreme lower end of the projectile thus adding to its stability.

The oval openings 13 are provided in order to avoid, when the cannon is fired, an exaggerated pressure in shell 9 which might affect the stability of the projectile and the accuracy of fire.

By having the propelling charge sealed in the tail the projectiles are ready for immediate use. The bent over portion of pin or rod 7' by limiting the depth to which the tail 15 may be inserted in the bore of the cannon protects the wires 19 and the cardboard wad 20 which will be properly varnished or waxed, for the purpose of keeping the propelling charge free from moisture. This wad is blown away or burned when the cannon is fired. By having the proper propelling charge sealed within the projectile no handling of charges at the last minute is necessary and this aids in the rapidity of shooting. Furthermore the ignition of the propelling charge in the tail closed by the wad always gives good ignition even when the explosion chamber formed in the bore of the cannon behind the tail is of maximum size as set forth in said prior application.

Having thus described my invention, what I claim is—

1. A projectile comprising a body having a chamber for an explosive charge formed therein, a hollow tail secured to the body, a

- propelling charge within said tail, a metal cylinder surrounding the tail and spaced therefrom to receive a gun barrel into which said tail is adapted to be inserted, and radially extending vanes secured to said cylinder adjacent its rear end.
2. A projectile of the class described, comprising a body, a hollow tail secured to said body, a propelling charge sealed within said tail, a sheet metal cylinder secured to said body and surrounding said tail, openings in said cylinder adjacent its inner end, and vanes secured to said cylinder adjacent its outer end.
3. A projectile of the class described, comprising a body portion, a hollow tail axially aligned with the body portion and secured thereto, a metal cylinder surrounding said tail and secured to said body portion, radial vanes secured to said cylinder adjacent its outer end and provided with stiffening ribs and a propelling charge sealed within said tail.
4. A projectile comprising a body having a chamber for an explosive charge formed therein, a tubular tail secured to the rear of said body, a propelling charge sealed within said tail, a cylindrical member carried by the body and extending along said tail and spaced therefrom, and vanes secured to said projectile.
5. A projectile comprising a body having a chamber for an explosive charge formed therein, a tail secured to the rear of said body and open at its rear end, a rearwardly extending member carried by the body surrounding said tail and spaced therefrom, vanes carried by said member and a propelling charge sealed within said tail.
6. A projectile comprising a body, a rearwardly extending hollow tail secured to said body, and open at its rear end, a cylindrical member carried by the body and extending rearwardly thereof in spaced relation to said tail, a propelling charge sealed within the hollow tail, and substantially radially extending vanes secured to the projectile.
7. A projectile comprising a body, a rearwardly extending tubular tail carried by the body and axially aligned therewith, a rearwardly extending cylindrical member carried by the body, concentric with but spaced from said tail, substantially radially extending wings secured to the projectile, and a propelling charge sealed in said tail.
8. A projectile comprising a body having a chamber for an explosive charge formed therein, a rearwardly extending hollow tail secured to the body and adapted to be inserted into the bore of a gun, a stop associated with the tail for engaging the gun barrel and determining the distance the tail may be inserted into the barrel, a rearwardly extending tubular member open at its rear end and adapted to receive the gun barrel into which said tail is inserted, and having an opening formed therein adjacent said stop, and a propelling charge sealed within said tail.
9. A projectile comprising a body having a chamber for an explosive charge formed therein, a rearwardly extending hollow tail secured to the body and adapted to be inserted into the bore of a gun, a stop associated with the tail for engaging the gun barrel and determining the distance the tail may be inserted into the barrel, a rearwardly extending tubular member open at its rear end and adapted to receive the gun barrel into which said tail is inserted, and having an opening formed therein adjacent said stop, vanes mounted on said member, and a propelling charge sealed within said tail.
10. A projectile comprising a body, a centrally disposed, rearwardly extending tubular tail carried by the body and open at its rear end, a rearwardly extending member carried by said body concentric with and spaced from said tail open at its rear end and provided with openings at its forward end adjacent said body, a propelling charge sealed within said tail, and means for firing said charge located at the body end of said tail.
11. A projectile comprising a body, a rearwardly extending tubular tail carried by the body and adapted to receive a propelling charge and to be inserted in a gun barrel and a rearwardly extending member carried by the body, surrounding said tail and spaced therefrom to receive the gun barrel into which the tail is inserted, said member being open at its rear end and having an opening at its forward end adjacent the body, and outwardly extending vanes secured to said projectile.
12. A projectile comprising a body, a rearwardly extending hollow tail secured to the body and adapted to receive a propelling charge and to be inserted into a gun barrel, a stop carried by the projectile for engaging the gun barrel and determining the extent to which the tail may be inserted into the barrel, a rearwardly extending member carried by the body, and surrounding the tail and open at its rear end and provided with an opening at its forward end, and substantially radially extending vanes secured to said member, said member being spaced from said tail to receive the gun barrel into which said tail may be inserted.
13. A projectile comprising a body having a chamber for an explosive charge formed therein, a rearwardly extending hollow tail secured thereto adapted to receive a propelling charge and to be inserted into a gun barrel, a rearwardly extending cylindrical member secured to said body and surrounding said tail and spaced therefrom to receive the gun barrel into which said tail may

be inserted, said member having an opening at the body end thereof, and firing means for the propelling charge located at the body end of said tail and operated through the
5 opening in said member.

14. A projectile comprising a body having a chamber formed therein for an explosive charge, a rearwardly extending hollow tail secured thereto adapted to receive a propelling charge and to be inserted into the barrel of a gun, a rearwardly extending member carried by the body eccentric with said

tail but spaced therefrom to receive a gun barrel into which said tail may be inserted, firing means for the propelling charge located in said tail and operated through a gas discharge opening formed at the forward end of said rearwardly extending member.

In testimony whereof, I have hereunto
subscribed my name this 4th day of February, 1919.

PIERRE VAN DEUREN.