

(No Model.)

L. GATHMANN.
PROJECTILE.

No. 511,418.

Patented Dec. 26, 1893.

Fig. 1.

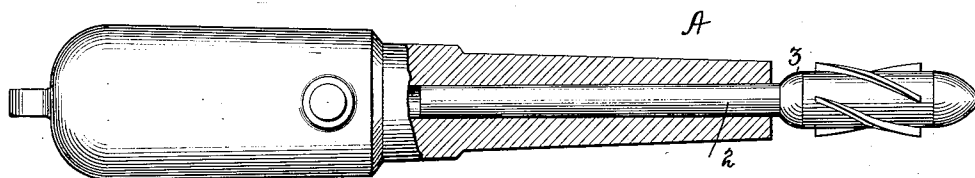


Fig. 2.

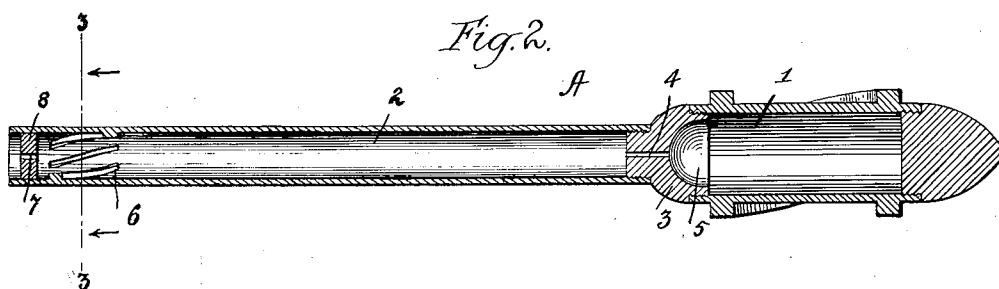


Fig. 3.

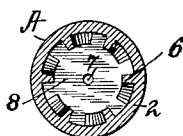
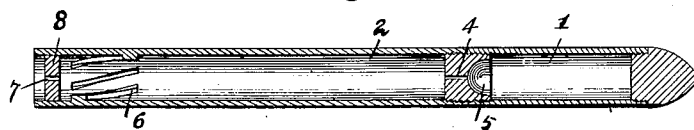


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

LOUIS GATHMANN, OF CHICAGO, ILLINOIS.

PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 511,418, dated December 26, 1893.

Application filed April 19, 1892. Serial No. 429,810. (No model.)

To all whom it may concern:

Be it known that I, LOUIS GATHMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Projectiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel construction in a projectile, and relates more particularly to a projectile adapted to be charged with a high explosive, oil, &c., the object being to provide such a projectile that can be fired with great accuracy.

The invention consists in the novel features of construction hereinafter fully described and specifically claimed.

In the accompanying drawings illustrating my invention,—Figure 1 is a side elevation of a projectile constructed in accordance with my invention in place in a gun, which latter is shown partly in section and in side elevation. Fig. 2 is a central, longitudinal sectional view of said projectile. Fig. 3 is a cross section on the line 3—3 of Fig. 2. Fig. 4 is a central, longitudinal section of a modified form of construction embodying my invention.

Referring to said drawings, A indicates as a whole the projectile, consisting of two hollow sections 1 and 2, the front section 1 to contain the explosive charge, and the rear section 2 to contain a charge of "rocket powder" or the like to give an additional impetus to the projectile after being fired from the gun. The two sections 1 and 2 are separable and are joined by a coupling piece 3 having an opening or perforation 4 therethrough so that the explosive charge in the front section 1 can be ignited from said rear section 2. By making such sections of the projectile separable, it will be noted that the front section can be filled with some explosive, such, for instance as wet gun cotton, so that the high explosive charge can be kept separate from the rest of the projectile and thus reduce the danger from accidental explosion or from fire, which is especially desirable in carrying such charges in vessels. The rear section 2 with its charges can be kept separate, and when

it is desired to use a projectile, the front end of the coupling 3 can be screwed into the end of section 1, and before doing so, the cup 5 in the end of such coupling can be filled with dry gun cotton, so that it will be readily exploded and thus explode the large charge in the front section 1.

In a projectile of this kind it is of course obvious that there is a liability that during its flight the projectile will turn over and thus spoil the aim, and to prevent such a result, I have provided means for imparting a rotation to the same and for maintaining such rotation during its flight. To this end a series of spirally arranged ribs or flanges 6 are located within the rear end portion of the rear section 2, and it will be noted that the force of the burning charge, within said rear section against such ribs or flanges, and also the twisting motion given to the charge as it emerges from the end of such section will serve to impart such rotation to the projectile and maintain the same during its flight. Various charges could be used within the rear section, but "rocket powder" is, as far as I am informed, preferable, and is packed under pressure therein in a familiar manner, and is conveniently ignited by the burning of the charge from the gun from which the projectile is fired by a fuse, or through an opening 7 in a plug 8 located within the rear end of the said section 2, whereupon said charge in said rear section will force the plug from the end of the section. It is of course understood that a projectile of this kind can be fired from a smooth bore or a rifled gun, but I have arranged the plug 8 a little distance in from the end of the section, so that the explosive charge of the gun will force the shell of the section 2 into the rifle grooves of a gun, when the projectile is fired from such a gun, to thereby give the initial rotation to the projection.

To further increase the rotation given to the projectile, the end portion thereof may be provided with spiral wings 9 which will serve to cause the rotation of the same in an obvious manner.

As a further and separate improvement in projectiles, I make the front section 1 of greater diameter than the rear section 2, and am thus enabled to fire a large amount of explosive

that will have a maximum destructive effect upon the object against which it is exploded. By this construction it will be further noted that the explosive charge carried in the enlarged end of a projectile of comparatively small caliber will be rendered much more destructive than if it was confined with the shell of such caliber, because the explosion takes place nearer the object, as the explosive, being contained in a shell of large diameter, is therefore nearer the object against which it strikes. And further, projectiles of a given caliber can carry a greater amount of explosive, and yet be propelled to the same extent by reason of the auxiliary propelling charge.

I do not, in this application, claim certain features shown herein, but which are claimed in another application filed by myself in the United States Patent Office April 19, 1892, Serial No. 429,809.

I claim as my invention—

1. A projectile having a hollow rear end portion to receive a propelling charge, and a series of interior spirally arranged ribs or flanges located within said hollow rear end portion.
2. A projectile having a hollow rear end portion to receive a propelling charge, a series of interior spirally arranged ribs or flanges, and a perforated plug located within the rear end portion of said projectile and inward of its rear end.
3. A projectile having a rear section adapted to enter and fit within the bore of a gun or ordnance piece, and an enlarged front section 1 provided with a series of exterior spirally arranged wings.
4. A projectile having a rear section adapted to enter and fit within the bore of a gun or ordnance piece, and an enlarged hollow front section 1 provided with a series of exterior spirally arranged wings.
5. A projectile having a hollow rear section

2, adapted to enter and fit within the bore of a gun or ordnance piece and to contain a propelling charge and an enlarged hollow front section 1 to contain an explosive charge to be ignited by said propelling charge.

6. A projectile having a hollow rear section adapted to enter and fit within the bore of a gun or ordnance piece and to contain a propelling charge, an enlarged hollow front section 1 adapted to contain an explosive charge, and a perforated partition separating said front and rear sections.

7. A projectile having a hollow rear section adapted to enter and fit within the bore of a gun or ordnance piece and to contain a propelling charge, an enlarged hollow front section 1 adapted to contain an explosive charge to be ignited by said propelling charge, and a series of spirally arranged wings upon said enlarged front section 1.

8. A projectile having a hollow rear end portion to receive a propelling charge, a series of interior spirally arranged ribs or flanges located within said hollow rear end portion, and a series of exterior spirally arranged wings on the front end portion of said projectile.

9. A projectile having a hollow rear section adapted to enter and fit within the bore of a gun or ordnance piece and to contain a propelling charge, a series of interior spirally arranged ribs or flanges located within said hollow rear end portion, an enlarged hollow front section 1 adapted to contain an explosive charge to be ignited by said propelling charge, and a series of spirally arranged wings upon said enlarged front section 1.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS GATHMANN.

Witnesses:

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RUDOLPH W. LOTZ.