

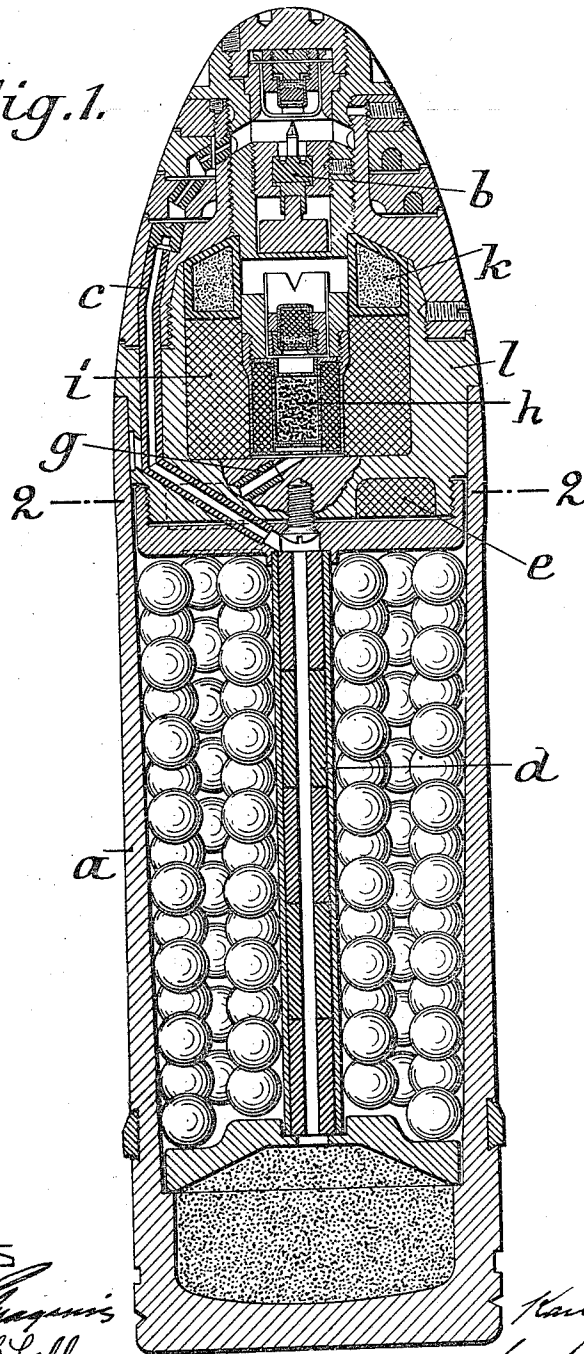
K. VÖLLER.
ARTILLERY PROJECTILE.
APPLICATION FILED APR. 16, 1912

1,042,176.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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Fig. 2.

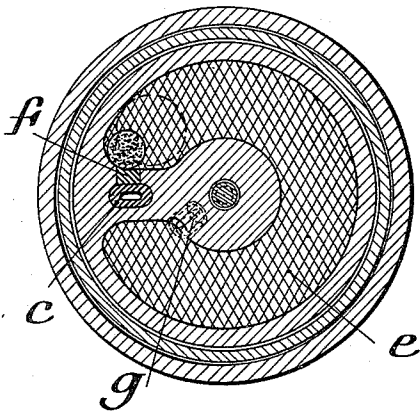


Fig. 4.

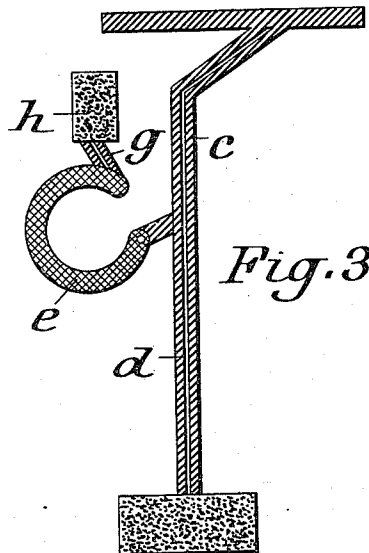
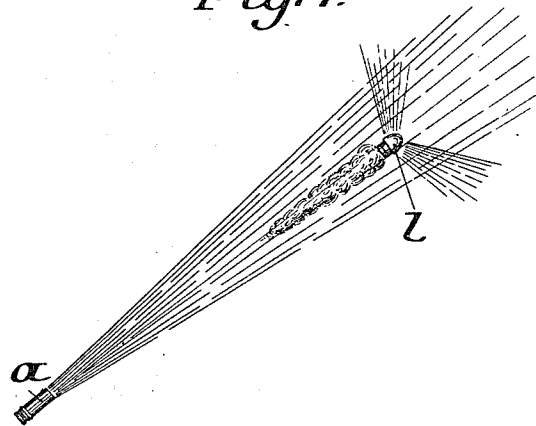


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

KARL VÖLLER, OF DUSSELDORF, GERMANY.

ARTILLERY-PROJECTILE.

1,042,176.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed April 16, 1912. Serial No. 691,146.

To all whom it may concern:

Be it known that I, KARL VÖLLER, engineer, a subject of the German Emperor, residing at Dusseldorf, 12 Scharnhorststrasse, Germany, have invented certain new and useful Improvements in Artillery-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.

An incendiary shell is described in the patent application Ser. No. 484,518 in which a rocket charge is placed in front of the part of the shell containing the shrapnel bullets, which charge is ignited by the explosion produced by the time or percussion fuse. In firing at air ships the flames would only be transmitted to the air ship by a projectile of this kind, if it actually hit the target, or at least passed very close to it; otherwise the head which is emitting sparks and flames would have no destructive action on the air ship.

In order to heighten the effect of the shell and more particularly to increase the area of its lateral action, the head of the projectile, in front of the shrapnel containing portion, which head gives rise to the incendiary effect, is provided, not only with an inflammable composition, but also with a filling of explosive material, which is already known in connection with combined high explosive and shrapnel shells. According to the present invention, by constructing the head of the projectile as a grenade as well as providing it with an incendiary composition, the additional result is gained as compared with the invention disclosed by the before noted application for patent, that in consequence of the explosive action of the head of the shell, an air ship will be hit and destroyed by some part of the projectile, although it may not be hit by the whole projectile or by the detached head.

A construction according to the invention is shown in the accompanying drawings, wherein—

Figure 1 is a vertical longitudinal sectional view. Fig. 2 is a cross-section on line 2—2, Fig. 1. Fig. 3 is a diagrammatic view of the explosive material. Fig. 4 is a diagrammatic view illustrating the flight and explosion.

The main body *a* of the shell is constructed as in the before noted application for pat-

ent as a shrapnel containing chamber, whose charge will be ignited by the time fuse *b* at a certain point of the path by means of the priming channels *c* and *d*. This causes the shrapnel bullets to be expelled in a comparatively narrow cone, and the head of the projectile continues its flight, as shown diagrammatically in Fig. 4.

At the rear or inner end of the head *l* of the shell is the inflammable composition *e*, which, as shown in Fig. 2, is pressed into an annular shape and is connected with the channel *c* by a small cross passage *f*. As soon as the shrapnel explodes and the detachable head continues its flight, the inflammable composition *e* is ignited and burns during the further flight of the head *l* of the shell, leaving behind a trail of smoke of predetermined length, by which it is more easily seen and range calculated. In the head besides the incendiary material *e* there is also the explosive charge *i*. This is detonated as soon as the inflammable material *e* is burnt away. The fire strikes then through the channel *g* to the detonator *h* contained in the head of the shell, and explodes this, thereby causing the explosion of the high explosive charge and the disruption of the head. A smoke generator *k* in the head of the shell serves to make the moment of the explosion of the grenade head more easily observed. By the detonation of the explosive charge pieces of the head are scattered in all directions and the effective zone of the whole projectile is very large and much more extended, than that of the incendiary material of the above noted application for patent.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An artillery projectile adapted for firing at airships, comprising, in combination with a shell containing shrapnel, a separable portion, inflammable smoke-producing material extending over a comparatively extended area within the separable portion, and an explosive charge in said separable portion which is designed to be ignited by said inflammable material.

2. An artillery projectile adapted for firing at airships, comprising, in combination with a shell containing shrapnel, a separable portion having a groove extending substantially around its axis, inflammable smoke-

producing material located within said groove, and an explosive charge in said separable portion designed to be ignited by said inflammable material.

- 5 3. An artillery projectile adapted for firing at airships, comprising, in combination with a shell containing shrapnel, a separable portion having a groove extending substantially around its axis, an inflammable smoke
10 producing material located within said groove, an explosive charge in said separable portion designed to be ignited by said in-

flammable material, and a smoke generator in said separable portion for indicating the moment of the explosion of the separable portion. 15

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

KARL VÖLLER.

Witnesses:

PETER NOLFGARTEN.
W. TACK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."