

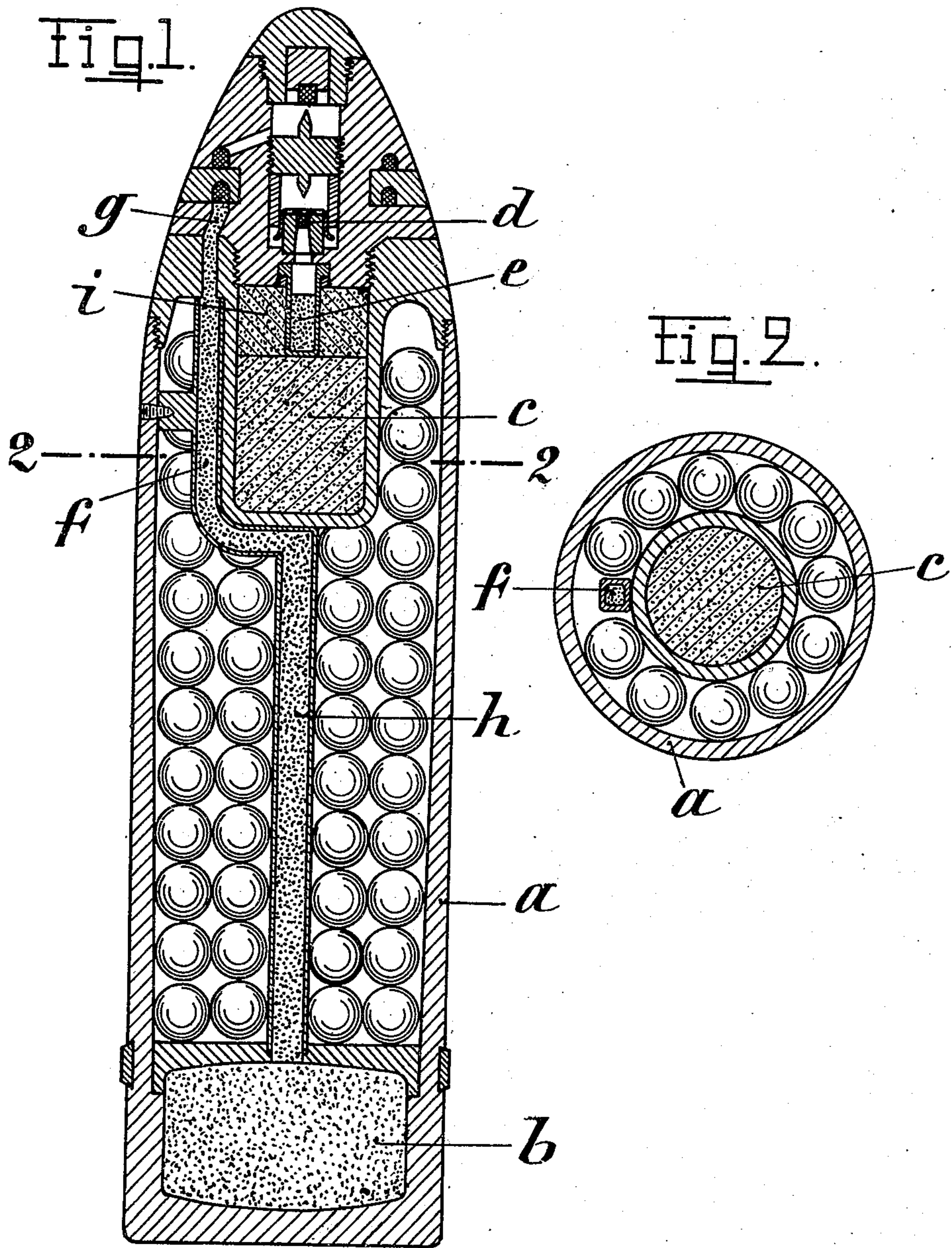
No. 775,640.

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P. D. VAN ESSEN.  
SHRAPNEL.

APPLICATION FILED FEB. 1, 1904.

NO MODEL.



WITNESSES

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# UNITED STATES PATENT OFFICE.

PIETER DANIEL VAN ESSEN, OF UTRECHT, NETHERLANDS.

## SHRAPNEL.

SPECIFICATION forming part of Letters Patent No. 775,640, dated November 22, 1904.

Application filed February 1, 1904. Serial No. 191,593. (No model.)

*To all whom it may concern:*

Be it known that I, PIETER DANIEL VAN ESSEN, lieutenant of the artillery, a subject of the Queen of Holland, residing at Utrecht, 43 Buys, Ballot straat, Holland, have invented new and useful Improvements in Shrapnels, of which the following is a specification.

My present invention relates to artillery-projectiles, and more especially to that kind of shrapnel-shells which contain two charges, one for dispersing the shot being located in a chamber at the base of the projectile and the second, which is only ignited at the moment of impact, for bursting the projectile.

The invention has for its object to increase the effect of the projectile at the moment of impact without diminishing the advantages peculiar to the base-chamber system when it is used as a shrapnel.

In the projectiles hitherto constructed according to this plan the bursting charge was distributed over the whole length of the chamber containing the shot, and the space available for shot was thereby considerably reduced. A further disadvantageous consequence of this arrangement was the hollow cone of dispersal caused in the moment of impact directly by the explosion of the bursting charge and if the projectile was used as a shrapnel by the comparatively large distance of the shot from the longitudinal axis of the projectile. Contrary to this disposition, my invention consists in arranging the bursting charge in a chamber located near the point of the projectile and in disposing the shot partly between this bursting charge and the exterior wall of the projectile, partly between the bursting charge and the base-chamber.

In the accompanying drawings, Figure 1 is a longitudinal section of a projectile constructed according to my invention, and Fig. 2 a cross-section on line 2 2 of Fig. 1.

In the drawings, *a* is the exterior skin or wall of the projectile.

*b* is the base-chamber, containing the usual charge for dispersing the shot.

*c* is the chamber containing the bursting charge, preferably consisting of a high explosive, and *e* is a detonator adapted to be fired when the projectile strikes.

*g* is the usual time-fuse of double action.

A vent *f*, passing around the chamber *c* to the center of the projectile and connected to a second central vent *h*, serves to transmit the ignition of the time-fuse to the dispersing charge *b*. The shot is partly disposed between the chamber *c* and the exterior wall of the projectile and partly between that chamber and the base-chamber *b*.

I find it useful to add a sufficient quantity of smoke-producing material to the high explosive forming the bursting charge *c*.

If the time-fuse is used, the action of the projectile is similar to that of an ordinary shrapnel, the bursting charge being not ignited; but when the projectile strikes the detonator will fire the bursting charge *c*, the fore part of the projectile will first be shattered as a shell, and then the shot-dispersing charge *b* will be fired and will throw the rest of the shot forward.

Having thus described my invention, what I claim is—

1. A projectile, containing a base-chamber charge, a separated bursting charge provided with means for igniting it at the moment of impact, said bursting charge being located at the forward part of the projectile, and shot arranged partly between the bursting charge and the exterior wall of the projectile, and partly between the bursting charge and the base-chamber; substantially as described.

2. A projectile, containing a base-chamber charge, a separated bursting charge provided with means for igniting it at the moment of impact, said bursting charge being located at the forward part of the projectile and consisting of a high explosive together with a smoke-producing substance, and shot arranged partly between the bursting charge and the exterior wall of the projectile, and partly between the bursting charge and the base-chamber; substantially as described.

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

PIETER DANIEL VAN ESSEN.

Witnesses:

LUDOLF OPDEN NOOST,

BURCHARD GERBRAND EDOUARD ELIAS.