

N° 15,956



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Complete Specification Left, 20th Mar., 1916—Accepted, 20th Mar., 1919

PROVISIONAL SPECIFICATION.

Improvements in Incendiary Bullets, Shells, and the like.

I, JAMES FRANK BUCKINGHAM, Engineer, of 159, Spon Street, Coventry, do hereby declare the nature of this invention to be as follows:—

This invention relates to incendiary bullets, shells, and the like, of the kind in which the bullet contains a substance which inflames at the temperature of the bullet when it leaves the barrel. The object of the invention is to provide a more effective type of bullet in which the contents are thoroughly protected from the pressures of the cartridge explosion.

According to this invention, one or more outlets are made in the side of the bullet and the rifle barrel acts directly or indirectly as a valve to seal these outlets, which are only exposed when the bullet leaves the barrel. The contents are therefore protected from the high pressures in the barrel and they spread considerably directly they are ejected. Their ejection takes place under centrifugal force and it is found that a uniform effect is obtained in that the contents are thrown out in a very fine spray, instead of irregularly as is apt to be the case where the outlets are at the back. In the present case the contents are actually forced out partly by their own pressure as they are heated up and partly by the centrifugal force.

The outlets may be sealed by an easily fusible solder which is melted by the temperature of the cartridge explosion but is not ejected until the bullet leaves the barrel. The rifle barrel acts directly as a valve, as will be understood. Alternatively the outlet may contain a valve which is held seated by fusible solder or the like, and is not allowed to become unseated until the bullet leaves the barrel.

The invention is applicable to tracers as well as to incendiary bullets and shells.

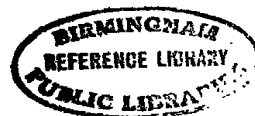
Dated this 11th day of November, 1915.

ERIC W. WALFORD,
Fellow of the Chartered Institute of Patent Agents,
18, Hertford Street, Coventry,
Agent for the Applicant.

COMPLETE SPECIFICATION.

Improvements in Incendiary Bullets, Shells, and the like.

I, JAMES FRANK BUCKINGHAM, Engineer, of 159, Spon Street, Coventry, do hereby declare the nature of this invention, and in what manner the same is to
[Price 6d.]



Buckingham's Improvements in Incendiary Bullets, Shells, and the like.

be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to incendiary bullets, shells, and the like of the type described in my prior Patent No. 1198/1915. Its object is to provide an improved construction in which the contents are more thoroughly protected 5 and cut off from the force and gases of explosion of the cartridge, whilst at the same time a very simple construction is produced which can be applied to bullets of very small size.

According to this invention, the bullet comprises a case, closed at the back, and filled with some incendiary substance, such as phosphorus, which inflames 10 automatically as it leaves the case through an outlet in the side. There may be more than one outlet, and in each is fixed a closure or seal which is adapted to be released automatically by the heat before, or in some cases soon after, the bullet leaves the barrel. Thus until the bullet leaves the barrel the outlet 15 is sealed and the inflaming substance in the case cannot come into contact with the gases of the cartridge explosion. Nor can it come into contact with the barrel, and a very simple construction suitable for service bullets is produced.

I am aware that it is not novel in incendiary projectiles to provide an outlet at the side of a chamber containing an incendiary or tracer material which is closed by a seal which cannot be dislodged until the projectile leaves the barrel. 20

In the accompanying drawings,

Figure 1 is a sectional view showing a bullet constructed in accordance with this invention just leaving the barrel.

Figure 2 is a similar view showing the bullet after it has left the barrel.

Figure 3 is a sectional view showing a modification. 25

Like letters indicate like parts throughout the drawings.

In both constructions the bullet case A is arranged to contain phosphorus or some other suitable substance which liquifies owing to the heat conducted through the walls from the explosion of the cartridge, and is then ready to be ejected through one or more outlets either in a flaming condition, or to burst 30 into flame directly it comes in contact with the air. The outlet B is made in the side of the bullet and is closed by a plug Z of some easily melted substance such as a solder which will be melted automatically by the heat conducted to it. On firing the cartridge this solder will melt, but it and the contents of the bullet will not escape until the bullet leaves the barrel C as will be clearly 35 seen in Figures 1 and 2. In Figure 1 it will be noticed that the plug Z is retained by the barrel. In Figure 2 the melted plug has been dispersed and the bullet is in flight, ejecting the contents through the hole B. The incendiary contents selected expand considerably when heated and when used in a rifled barrel the internal pressure due to the heat conducted to them, 40 added to the centrifugal action, causes the contents to be violently ejected and finely distributed so that a uniform effect is obtained.

In the alternative construction shown in Figure 3 the hole B is only indirectly closed by the fusible substance. In each outlet B is placed a non-fusible plug D or the like and this is held in place by an easily fusible solder. 45

Thus the rear end of the bullet can be permanently closed by a plug E and the contents are fully protected from the force of explosion of the cartridge, and the barrel protected from contact with the incendiary substance.

In some cases it may be desirable that the lateral hole be placed near the front of the bullet so that a short time may elapse before the heat is conducted 50 along the bullet. The result is that the flame does not appear until the bullet has travelled a certain distance away from the rifle or gun. This is of advantage in some cases as it does not enable the position of the gun to be so easily traced. Consequently the location of the outlet or outlets with regard to the length of the bullet determines the moment at which the flame 55 commences.

Buckingham's Improvements in Incendiary Bullets, Shells, and the like.

The invention is applicable to tracers as well as to incendiary bullets and shells.

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
5 what I claim is:—

1. An incendiary bullet, shell or the like, comprising a case closed at the back and filled with some substance, such as phosphorus, which inflames automatically as it leaves the case through an outlet in the side which contains a closure adapted to be released automatically by the heat before, or in some
10 cases soon after, the bullet leaves the barrel, substantially as described.
2. The complete incendiary bullet substantially as described or illustrated in Figures 1 and 2 or in Figure 3 of the accompanying drawings.

Dated this 9th day of March, 1916.

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ERIC W. WALFORD,
Fellow of the Chartered Institute of Patent Agents,
18, Hertford Street, Coventry,
Agent for the Applicant.

Fig.1

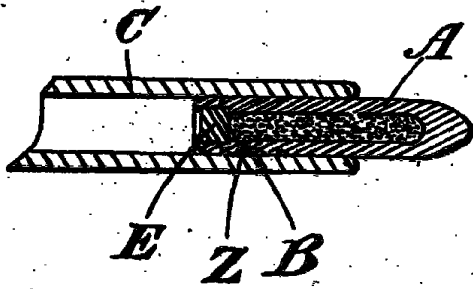


Fig.2.

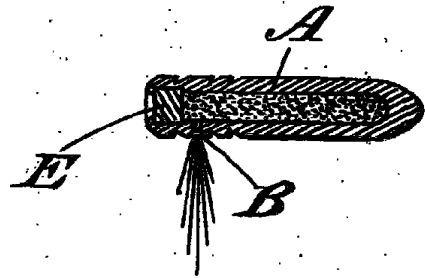
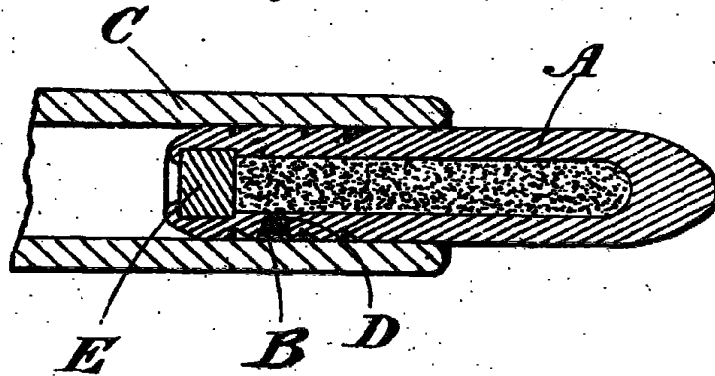


Fig.3.



[This Drawing is a reproduction of the Original on a reduced scale.]

