J. F. BUCKINGHAM.

INCENDIARY PROJECTILE.

APPLICATION FILED JULY 2, 1917.

1,301,380. Patented Apr. 22, 1919.

Fig. 1.

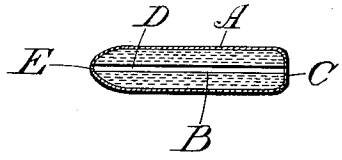


Fig. 2.

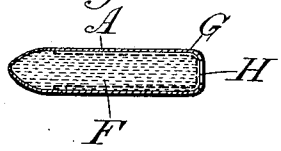
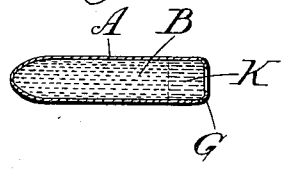


Fig. 3.



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INCENDIARY PROJECTILE.

1,301,380. Specification of Letters Patent. Patented Apr. 22, 1919.

Application filed July 2, 1917. Serial No. 178,264.

To all whom it may concern:

Be it known that I, JAMES FRANK BUCKINGHAM, a subject of the King of England, and residing in Coventry, Warwickshire, England, have invented certain new and useful Improvements in Incendiary Projectiles, of which the following is a specification.

This invention relates to incendiary projectiles with the object of making such projectiles extremely simple, not depending on impact for their operation and requiring no fuses or igniters.

It has, of course, been proposed to furnish projectiles of the kind above set forth with "tracers" for indicating their flight, which consisted of a receptacle containing incendiary mixture which was ignited by the explosion of the cartridge and adapted to flow out through an aperture in the rear of the receptacle, while it has also been proposed to provide an inlet at the nose and an outlet at the rear of the projectile for the purpose of forcing out liquid incendiary material by means of the air entering during flight, but this incendiary material was not ignited directly by the cartridge.

In another suggestion, the cavity in the shell has been almost completely filled with a substance which ignites on exposure to the air, such as a solution of phosphorus in carbon bisulfid and this has been caused to issue from the rear or the side of the shell by means of internal pressure set up in various ways as by the admission of gas under pressure to the interior. The contructions which are the subject of the present invention are very much simpler, which is extremely important in the case of a small object such as an incendiary bullet. The cavity in the shell can be completely filled with the incendiary substance, and preferably this is the case and no device is used for generating internal pressure for the ejection of the contents. The incendiary substance is heated by the explosion of the cartridge, the contents melt and expand and flow out through the orifices provided and then burst into flame when they come into contact with the air.

This invention comprises a hollow projectile in which the whole of the interior is filled with a homogeneous incendiary mixture which is melted directly by the heat from the explosion of the cartridge causing the incendiary contents to flow out at the rear.

The invention further comprises the provision of a longitudinal air passage through the projectile which is normally closed by some material such as shellac.

A suitable incendiary mixture is phosphorus, which may be held in place in the projectile in any suitable manner, as by inserting into it a wick or the like saturated with the material. Or the material may be cast in the projectile.

In one construction the projectile consists of a piece of tube through the open rear end of which is inserted a cylinder of gauze and inside this is placed a stick of phosphorus. The projectile is then boiled in water so that the phosphorus melts and runs into the gauze, and then sets.

The accompanying drawings show in longitudinal section three different constructions of incendiary projectiles made in accordance with this invention.

In these drawings similar parts are similarly lettered.

In the simplest case, shown in Figure 1, the projectile case A contains a suitable composition B such as phosphorus, and the rear end of the projectile is spun over as shown at C. Any other suitable means for inclosing the back of the projectile may be provided. Passing centrally through the complete projectile may be an air passage D the forward end E of which is closed with some substance such as shellac, which is displaced when the cartridge is fired. Consequently as the projectile travels through the air a current of air passes through the passage D, and the phosphorus, which is melted by the explosion of the cartridge, streams out through the back of the projectile in a flaming condition.

In the construction shown in Fig. 2 the rear of the projectile is open and a liner F of some suitable material such as wire gauze is inserted. The phosphorus is arranged within this liner and the rear end of the liner is closed in. The rear edges G of the projectile are spun over to hold the liner but the back of the projectile is open. It is not always essential that there be an air vent at the front of the projectile, and in this case this is dispensed with. When the

cartridge is fired the molten contents stream out from the aperture H and burst into flame when they come into contact with the air.

In the case shown in Fig. 3, the phosphorus B is held in the case of the projectile by a roll of wire gauze K. This wad K is held in position by the ends of the projectile G being spun over. The gauze wad keeps the phosphorus in place until it melts, when it allows it to stream out.

In some cases instead of providing an opening at the back of the bullet holes may be formed at the sides and through these holes the phosphorus may issue. These holes will consequently be closed by the barrel of the rifle and the phosphorus will not issue until the bullet has left the barrel.

Any suitable incendiary material may be used but obviously it is desirable to employ a material of high inflammability.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A hollow projectile comprising a metal shell provided with a front and a rear opening, and a filling for said shell comprising a homogeneous incendiary substance and provided with a passage therethrough adapted to register with said front and rear openings, said substance being adapted to melt when the propulsive charge of the projectile is fired.

2. A hollow projectile comprising a metal shell provided with a front and a rear opening, and a filling for said shell comprising a homogeneous incendiary substance and provided with a passage therethrough adapted to register with said front and rear openings, a plug of easily meltable material closing said passage, said incendiary substance being adapted to melt when the propulsive charge of the projectile is fired.

3. A hollow projectile comprising a metal shell provided with a front and a rear opening, and a filling for said shell comprising a homogeneous incendiary substance and provided with a passage therethrough adapted to register with said front and rear openings, a plug of shellac closing said passage, said incendiary substance being adapted to melt when the propulsive charge of the projectile is fired.

4. A hollow projectile comprising a metal shell provided with an opening in the rear, a phosphorus filling for said shell and wire gauze within the shell for holding the phosphorus in position.

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

JAMES FRANK BUCKINGHAM.

Witnesses:

ALBERT BROWN,

ANNIE L. WADE.