

979,575.

Fig. 1.

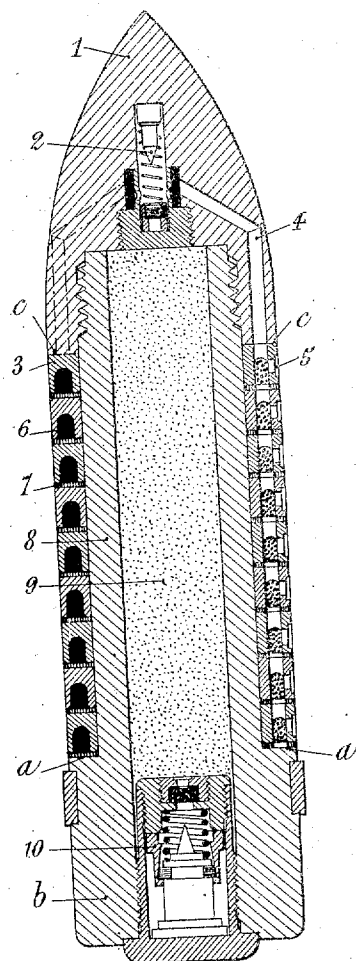


Fig. 2.

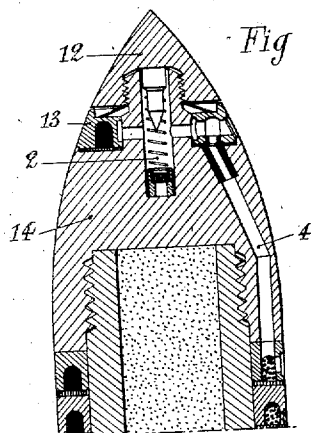
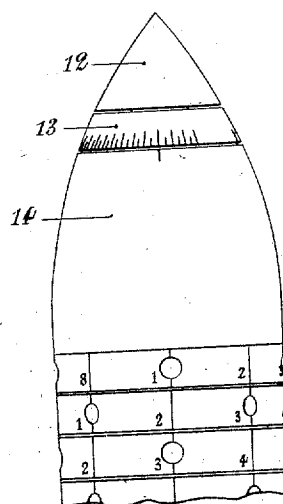


Fig. 3.



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PROJECTILE FOR ORDNANCE.
APPLICATION FILED JUNE 22, 1910.

Patented Dec. 27, 1910.
3 SHEETS—SHEET 2.

Fig. 4.

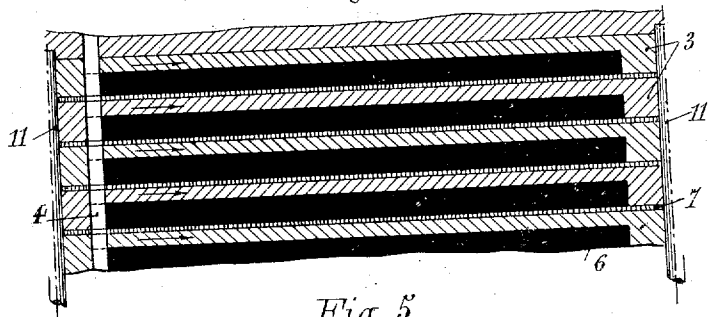


Fig. 5.

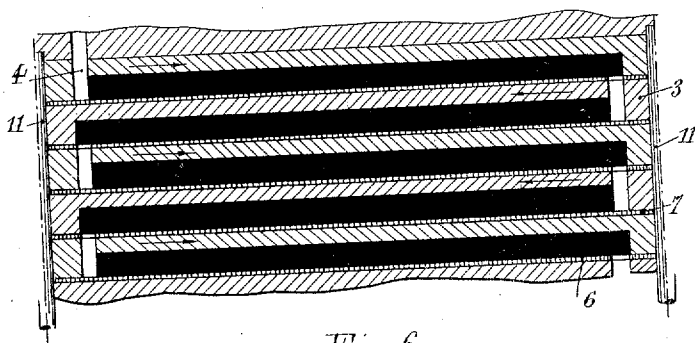
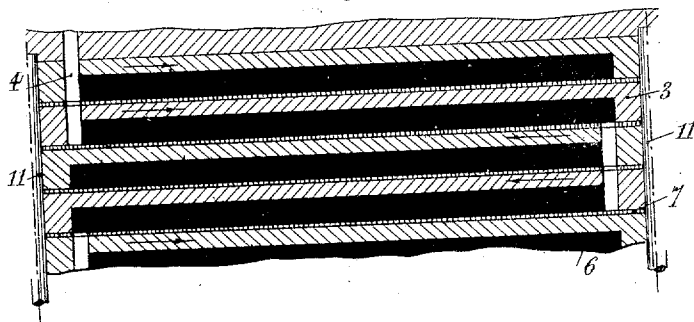


Fig. 6.



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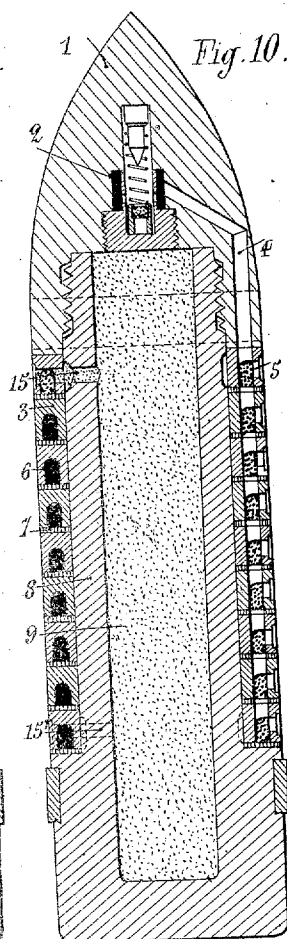
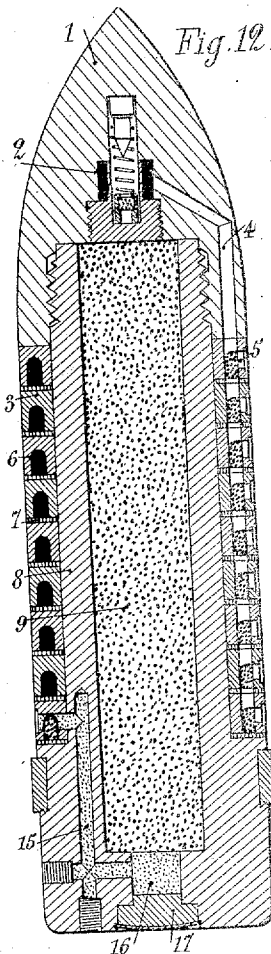
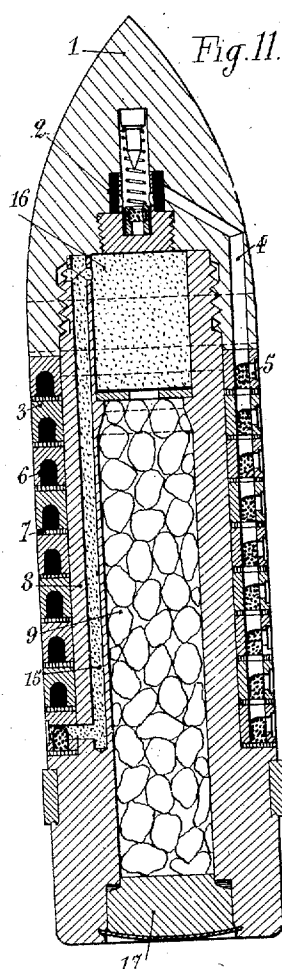
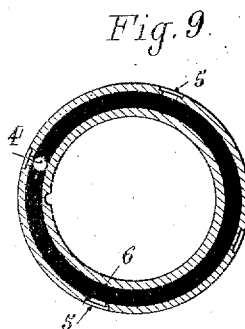
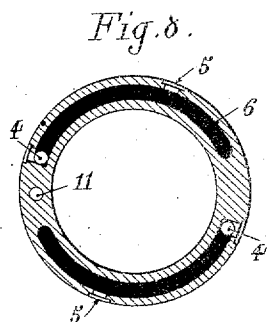
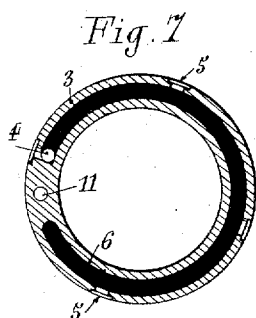
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3 SHEETS-SHEET 3.

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UNITED STATES PATENT OFFICE.

EUGENE SCHNEIDER, OF LE CREUZOT, FRANCE.

PROJECTILE FOR ORDNANCE.

979,575.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed June 22, 1910. Serial No. 568,325.

To all whom it may concern:

Be it known that I, EUGENE SCHNEIDER, citizen of the Republic of France, residing at Le Creuzot, Saône-et-Loire, France, have invented new and useful Improvements in and Relating to Projectiles for Ordnance, of which the following is a specification.

This invention relates to projectiles and particularly to those adapted for firing against balloons and the like, the chief object being to provide an improved projectile such that the object aimed at may be reliably ignited thereby.

According to the present invention the projectile is provided upon its cylindrical surface with a band containing a fuse composition which communicates with the atmosphere by means of a number of holes or ports, the said projectile being provided with a percussion or time ignition device for igniting the said fuse composition whereby the flame from the composition issues from the said holes or ports during the flight of the projectile. The said band of fuse rings may be retained upon the body of the projectile between a shoulder on the base portion and a corresponding shoulder on the ogival head, and one or more of the said fuse rings may communicate with an internal charge which serves either to burst the projectile or to produce a flame issuing from the base of the projectile.

In order that my invention may be clearly understood and readily carried into effect, I will proceed to describe the same more fully with reference to the accompanying drawing, in which:—

Figure 1 is a sectional elevation of one constructional form of the invention. Figs. 2 and 3 illustrate in longitudinal section and in elevation respectively a modified construction of the invention. Figs. 4, 5 and 6 illustrate in developed longitudinal section three different arrangements for the propagation of the flame between the superposed rings of the band surrounding the projectile. Figs. 7, 8 and 9 illustrate in cross section, three different forms of fuse ring, and Figs. 10, 11 and 12 illustrate in sectional elevation three further modifications of the invention.

Around the body 8 of the projectile there is arranged the aforesaid band for the reception of a fuse composition 6 of compressed powder; in order to facilitate the construction of the projectile, the said band

is preferably formed of superposed rings 3 separated by supporting washers 7 and connected one with the other by means of a longitudinal pin 11. This band of rings may be fixed upon the body 8 by any appropriate means, the most simple method being shown in Fig. 1 in which the said rings are clamped between a shoulder *a* formed by a projection of the base *b* upon the longitudinal wall of the body 8, and a shoulder *c* formed by a corresponding projection of the ogival head 1. A suitable number of ports place the interior of the band in communication with the atmosphere. The composition 6 may be fired by various means; for example one or more holes, 4 may be formed in the ogival head of the projectile and terminate at a percussion mechanism 2, as shown by way of example in Fig. 1, or at a time fuse as shown in Figs. 2 and 3. In the example illustrated in Fig. 1, ignition is obtained when the projectile is fired by the shock between the priming and the striker, the flame being transmitted through the passages 4 to the aforesaid band of fuse rings. In the example illustrated in Figs. 2 and 3, ignition is obtained at the end of a given time by the regulation of the time fuse 13 located between the ogival head and the point 12 of the projectile.

Fig. 4 shows as a developed section a band of superposed fuse rings arranged for igniting altogether, and Fig. 5 shows superposed rings arranged for igniting one by one in succession. In Fig. 6 the superposed rings are arranged for ignition in succession in pairs. Similarly they might be arranged for igniting in threes or any other number, for which purpose it is only necessary to distribute in an appropriate manner the passages through which the rings communicate one with the other. The transmission of the flash of ignition to the superposed rings might be effected through a single conduit 4 as shown in section in Fig. 7 or simultaneously by two conduits 4 arranged symmetrically as shown in Fig. 8.

The rings may be entirely filled with fuse composition as shown in Fig. 9 and a variable number of holes should be formed in them and end either at the percussion system or at the fuse system before referred to. The rings may be arranged prior to firing and their position may be regulated at the moment of firing in such a manner as to form one or more columns of flames

issuing from the ports and affecting either the whole of the superposed fuse rings or a portion thereof. The said rings may also be arranged in such a manner as to obtain two, four or more columns of flames diametrically opposite or otherwise and affecting either the whole or a portion of the fuse rings. Finally the position of the rings should be such as to cause the number of flames to vary in order to distribute them at will over the periphery of the projectile and to regulate the duration of the total combustion of the rings for the shortest or the longest trajectory of the projectile.

As shown in Fig. 1 the projectile may be provided with a base percussion fuse 10 of any convenient type operating when the projectile encounters an obstacle. This fuse causes the charge of powder 9 contained in the interior of the shell 8 to detonate and burst the projectile. The band of fuse rings may also be utilized for igniting the inner charge of the projectile, and in this case the base fuse will preferably be dispensed with. In the example illustrated in Fig. 10 the projectile contains a charge of powder 9 which through the passage 15 communicates with the upper ring in cases in which the rings are arranged as shown in Fig. 4 or through a passage 15' with the lower ring in the case illustrated in Fig. 5. Consequently at the commencement or at the end of the combustion of the rings the flame communicated to the charge 9 causes the projectile to explode. Passages intermediate between 15 and 15' may be formed in the body 8 of the projectile and in the rings in such a manner that by appropriately regulating the position of the latter the transmission of the flame to the charge 9 is produced at a variable moment of the combustion of the fuse composition 6.

Fig. 11 represents a projectile containing a charge of powder 16 in communication through the conduit 15 with one of the fuse rings 6 and a number of balls 9 of inflammable material. The detonation of the charge 16 causes at a given moment at the rear of the projectile the discharge of the balls 9 in the form of a rain, a cover 17 yielding fairly readily under the influence of the internal pressure.

The projectile illustrated in Fig. 12 contains in the interior a charge of compressed powder 9 communicating with one of the rings through a conduit 15. At a given moment of the flight of the projectile a

flame is communicated to the priming powder 16 which blows out the cover 17 and kindles the compressed charge which flashes rearwardly with great intensity.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A projectile for firing against balloons and the like comprising in combination, a shell body having an exterior shoulder on its base portion and an ogival head provided with an opposing shoulder, a plurality of fuse rings containing a flame-generating composition and mounted on said body and held between said shoulders, said rings being provided with flame passages open to the atmosphere, and with other passages for effecting communication between said rings, and ignition means for igniting said flame-generating composition.

2. A projectile for firing against balloons and the like comprising in combination, a shell body having an exterior shoulder on its base portion and an ogival head provided with an opposing shoulder, a plurality of fuse rings containing a flame-generating composition and mounted on said body and held between said shoulders, said rings being provided with flame-passages open to the atmosphere, and with other passages for effecting communication between said rings, and a conduit communicating the charge of said projectile and one of said fuse rings.

3. A projectile for firing against balloons and the like comprising in combination, a shell body having an exterior shoulder on its base portion and an ogival head provided with an opposing shoulder, a plurality of fuse rings containing a flame-generating composition and mounted on said body and held between said shoulders, said rings being provided with flame-passages open to the atmosphere, and with other passages for effecting communication between said rings, a conduit communicating the charge of said projectile and one of said fuse rings, and a closure in the end of the projectile adapted to be displaced when the initial charge is ignited to allow flame to issue from the rear of the projectile in its flight.

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

EUGENE SCHNEIDER.

Witnesses:

DEAN B. MASON,
R. DE SEVELINGER.