

VOID: SEALING FEE NOT PAID.

127,279

PATENT



SPECIFICATION

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Complete Accepted, June 5, 1919.

COMPLETE SPECIFICATION.

Improvements in or relating to Grenades.

I, LOUIS LÉON BILLANT, of 33, rue Bobillot, Paris, in the Republic of France, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to grenades of the kind adapted to be launched, or thrown by hand, or discharged from a rifle, or by other suitable means.

According to this invention the grenade is provided with a plug adapted to carry at its upper end, a spring which is formed at one end or at both ends as a firing pin, in firing pins, the said firing pin or firing pins being adapted to
10 ignite a time-fuse and being maintained in the safety position by a pin or pins which is or are released by the release of a hinged, pivoted or detachable external tail piece.

I will describe with reference to the accompanying drawing constructions in accordance with the present invention but I do not limit myself to the precise
15 constructions described and illustrated.

Figure 1 is a sectional elevation showing a grenade in accordance with the present invention, the grenade being shown in position in a launching tube.

Figure 2 is a plan view of the closing plug showing the method of retaining the firing pin in the safety position.

20 Figure 3 is a plan of a plug provided with a modified firing arrangement.

Figure 4 is a plan illustrating a modification of the double firing arrangement shown in Figure 3 and in which the pincers like spring is replaced by a coiled spring the latter being locked in its tensioned condition by a releasing fork or releasing forks.

25 Figure 5 shows in sectional elevation a different device for the disengagement of the release in which the releasing pin is pivoted on the tail piece and is detached by the latter under the action of the spring acting directly on the said tail piece.

Figure 6 shows a modified construction comprising a single blade spring;
30 and Figure 7 is a detail sectional view hereinafter referred to.

As shown, the grenade, which is of suitable external form is adapted to be shattered by internal explosion, and comprises a casing A having a cavity adapted to contain an explosive with or without shrapnel. Two guiding rings *b b* are formed on its outer surface to ensure smooth and relatively fluid-
35 tight sliding of the grenade in a suitable launching tube such as *c*. The grenade is formed at its tip with a screw-threaded hole B intended to receive a plug C. The base of the grenade is slightly convex in order to resist the pressure of the gases and is provided with a screw-threaded hole for charging

[Price 6d.]



thereinto the explosive and this hole is closed by a suitable plug. The plug C carries a spring D which is bent round a pin I one end of the spring D bearing against the interior of the plug C, and the other end being formed as a firing pin which is maintained in the safety position by a pin E.

The pin E is maintained in place by means of a hinged tail piece F of any suitable shape corresponding to the tip of the grenade and adapted to be operated by a spring G and retained in position against the grenade, by means of a second pin H called a safety pin. After the pin H has been removed the tail piece is retained by the hand of the launcher or by the launching tube thereby locking the releasing pin or pins.

Once the grenade has left the hand or the tube, the safety pin H having been previously removed, the tail piece when rising allows of the operation of the releasing means E by the action of the springs G either directly on the releasing pins and indirectly on the tail piece or independently and simultaneously on these two members.

The removal of the pin E releases the firing pin or pins on the end of the spring D to effect the deflagration of the primer *a* so as to produce the ignition of the fuse which is preferably arranged in such manner as to avoid the direct ignition of the detonator. This fuse may be a wick or may be an ordinary time fuse which ends at a detonator which it causes to explode at the end of its combustion.

In Figure 3 I have shown the firing device as comprising the spring D which is coiled round the pin I. The legs of the spring are crossed as shown and formed as firing pins at their free ends, these ends being maintained in a position of safety by the pin E. This construction requires the use of two primers *a* as shown.

In the construction shown in Figure 4, a helical spring D is employed, the ends of which are formed as firing pins and retained in the safety position by pins E, relative to the primers *a* of which two are shown in the figure. The pins E may be formed as separate pins or they may be formed as two pins the ends thereof being forked to form four pins as shown. In this construction when the pins E are raised by the action of springs such as G or by the upward movement of the tail piece with the aid of a spring or springs, the helical spring D is then free to expand and consequently the firing pins carried at the ends of the springs strike the primers *a* and thus ignite the fuse.

Figure 5 shows a modification in which the pin E is pivotally connected at *d* to the tail piece the release of the pin E being effected by the upward movement of the tail piece F caused by the spring G.

In Figure 6 I have shown the part D as being formed by a blade spring, the end thereof being adapted to act as the firing pin and retained in the safety position by the pin E. On the pin E being raised the end of the blade spring D strikes the primer *a* so as to ignite the fuse. The blade spring D in this construction is rigidly connected to the interior wall of the plug C or to a lug projecting therefrom.

Figure 7 illustrates a fluid-tight device which is applicable to the releasing pin E mentioned hereinbefore with a view to preventing the entry of moisture and which, in the case now under consideration, is automatically disengaged at the moment of ignition in order to permit of the escape of the gases.

This pin E is provided with a flexible ring *n* of leather, rubber or other suitable material ensuring fluid-tightness and which holds by simple adherence.

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. A grenade of the kind described, characterised by a plug adapted to carry at its upper end a spring which is formed at one end or at both ends as a firing pin, or firing pins, the said firing pin or firing pins being adapted to ignite a

time-fuse and being maintained in the safety position by a pin or pins which is or are released by the release of a hinged, pivoted or detachable external tail piece.

- 5 2. A grenade in accordance with Claim 1, and in which the ends of the spring are crossed to form legs provided at their free ends with a firing pin, adapted on release to strike their respective primers, both legs of the spring and consequently the firing pins being maintained in the position of safety by a pin or pins which is or are released by the release of a hinged, pivoted or detachable tail piece.
- 10 3. A grenade in accordance with Claim 1 and in which each retaining pin is provided with a flexible sleeve of leather, rubber or other suitable material for the purpose hereinbefore explained.
- 15 4. A grenade substantially as hereinbefore described and illustrated with reference to Figures 1 and 2, and the several modifications shewn in Figures 3, 4, 5, 6 and 7 of the accompanying drawing.

Dated this 11th day of October, 1916.

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Staple House, 51 & 52, Chancery Lane, London,
Agents for the Applicant.

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

Fig. 1.

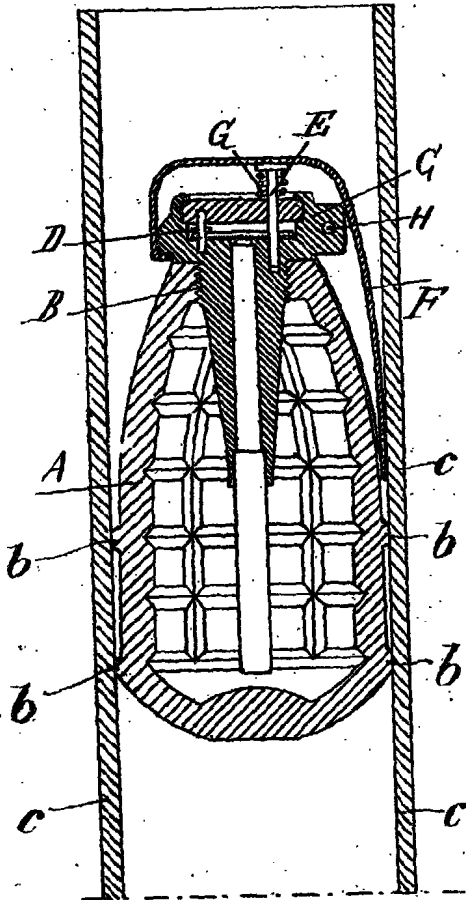


Fig. 5.

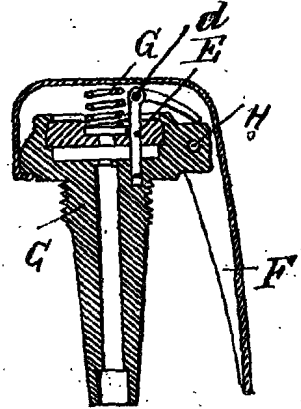


Fig. 7.

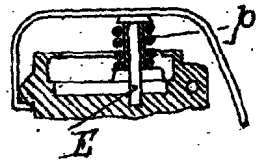


Fig. 2.

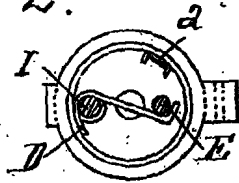


Fig. 4.

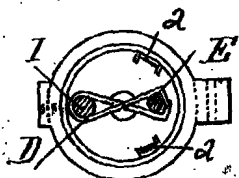
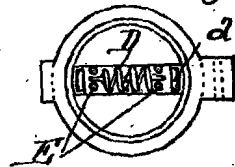


Fig. 3.

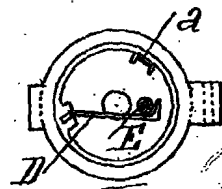


Fig. 6.