F. L. LEBLANC.

APPARATUS FOR IGNITING GRENADES.

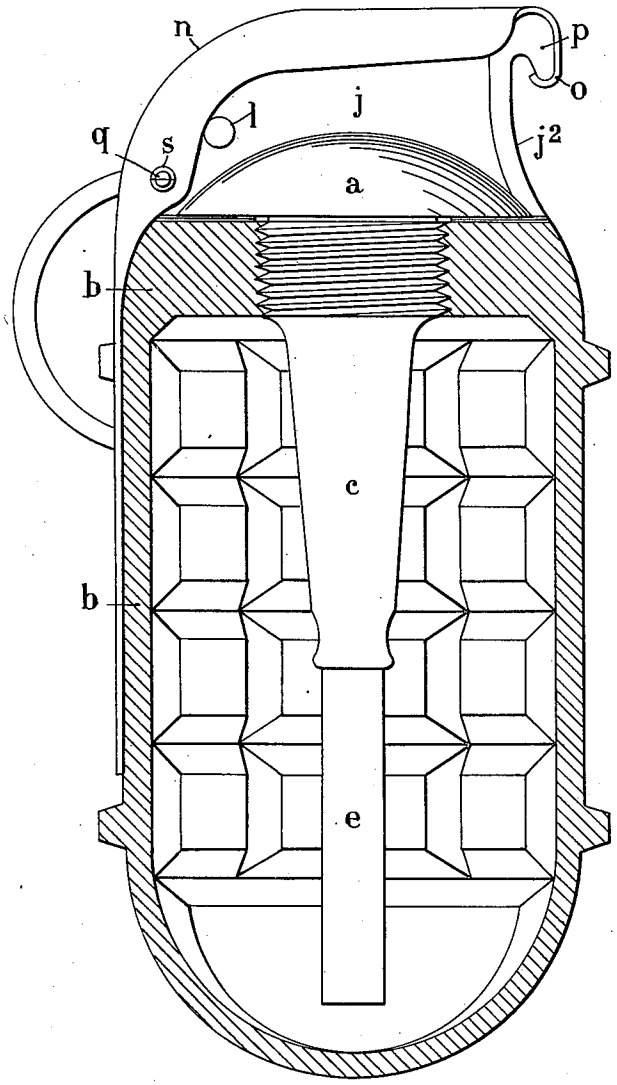
APPLICATION FILED MAR. 7, 1919.

1,307,684.

Patented June 24, 1919.

4 SHEETS—SHEET 1.

Fig. 1.



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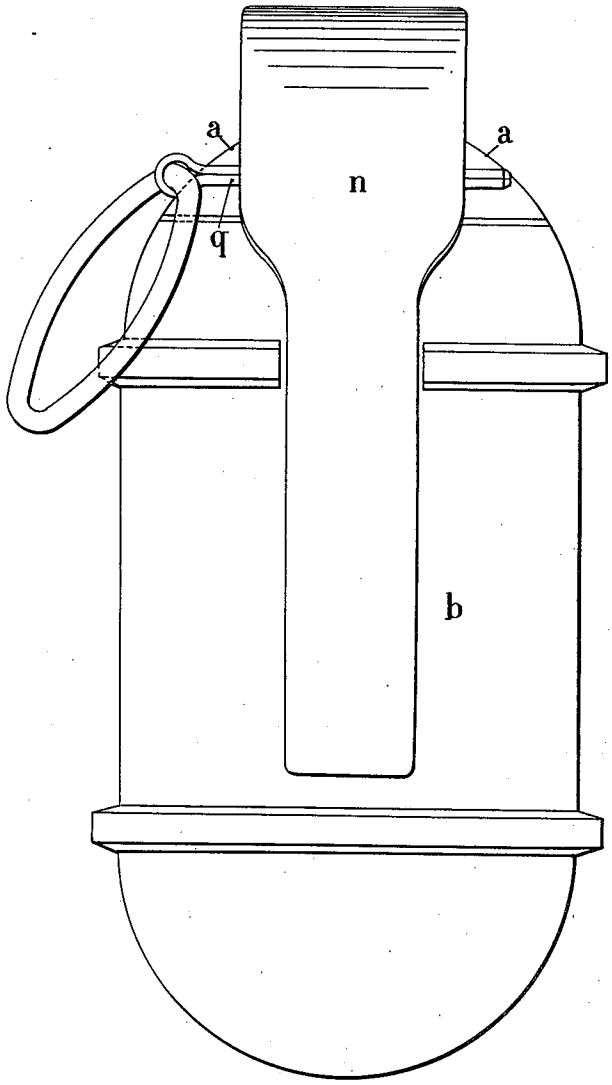
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

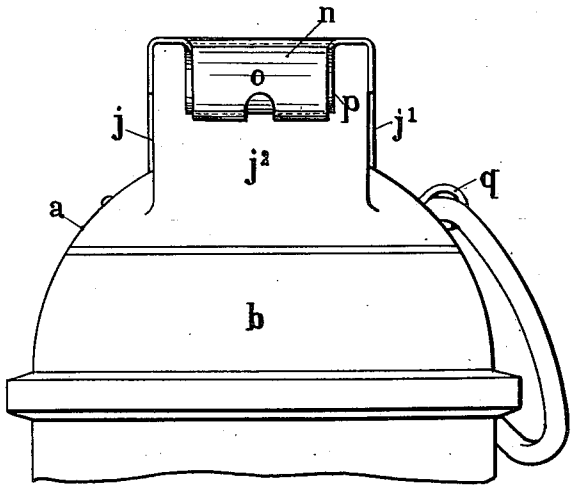
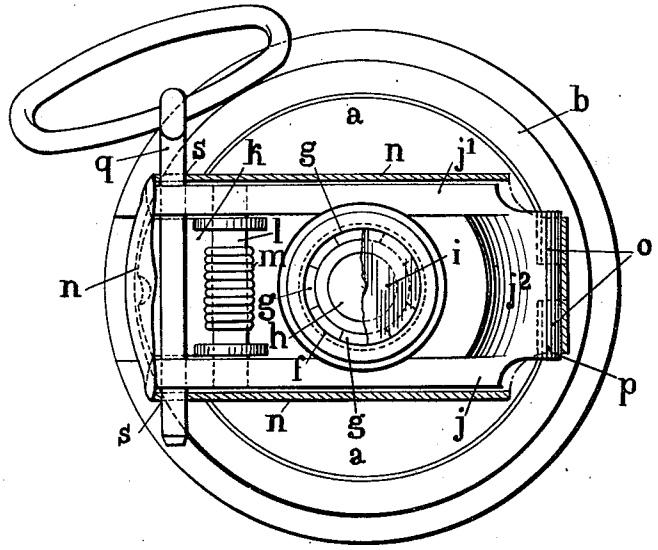


Fig. 4.



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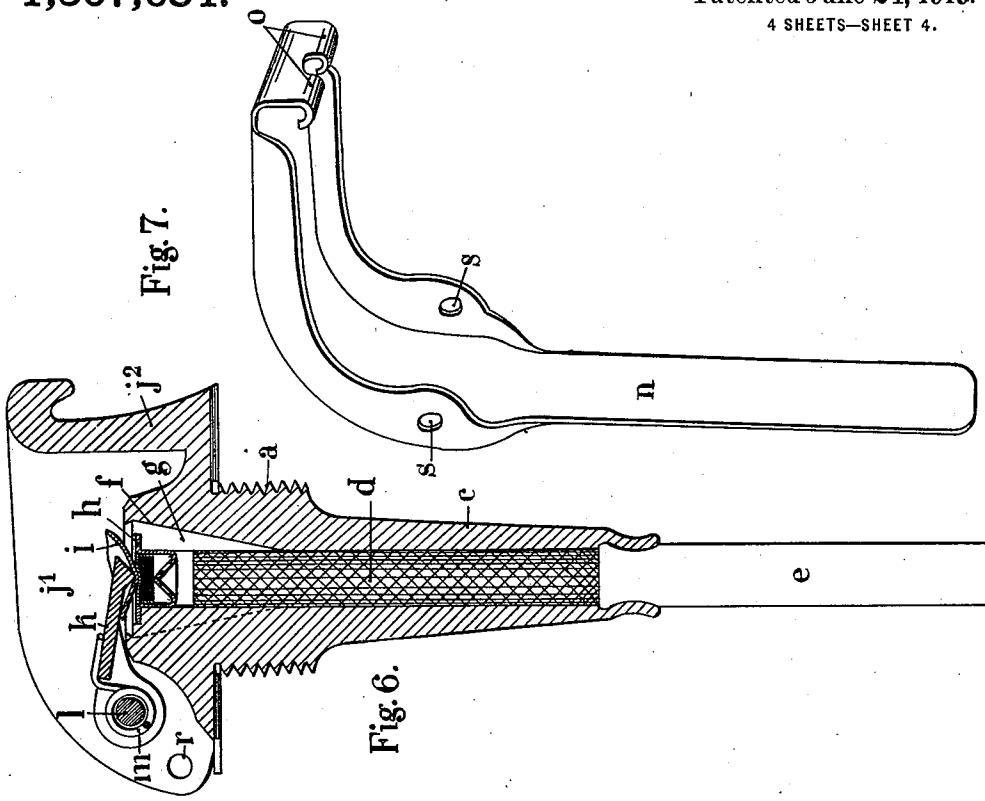


Fig. 7.

Fig. 6.

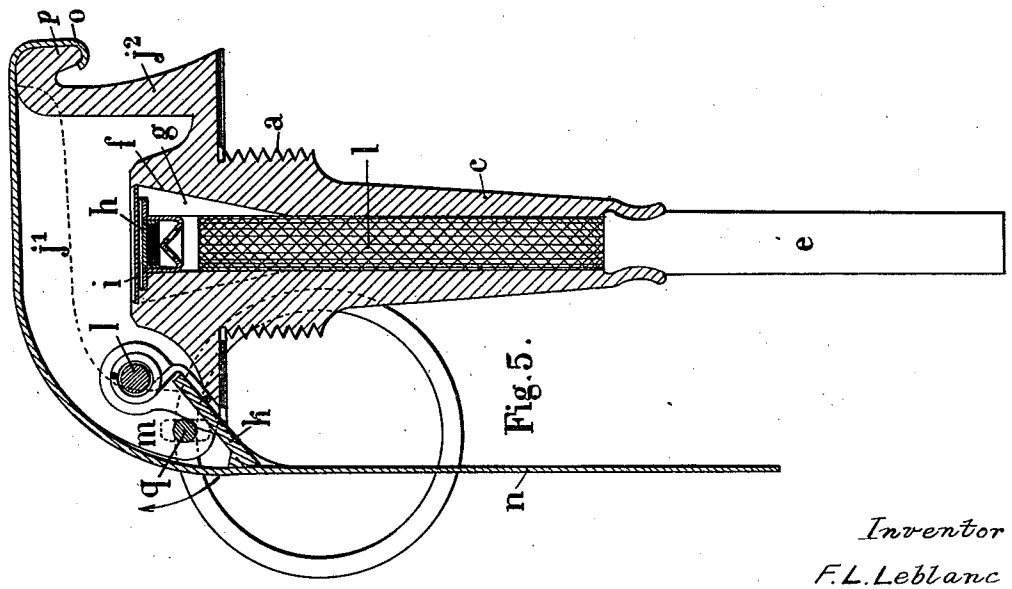


Fig. 5.

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UNITED STATES PATENT OFFICE.

FERDINAND LAMBERT LEBLANC, OF PARIS, FRANCE.

APPARATUS FOR IGNITING GRENADES.

1,307,684. Specification of Letters Patent. Patented June 24, 1919.

Application filed March 7, 1919. Serial No. 281,244.

To all whom it may concern:

Be it known that I, FERDINAND LAMBERT LEBLANC, of 46 Rue Lamartine, Paris, France, engineer, have invented an Improved Apparatus for Igniting Grenades, of which the following is a clear, full, and exact description.

As is well known, apparatus for igniting grenades comprise a striker adapted to strike a percussion cap whose explosion produces the ignition of a fuse, which latter on the termination of its combustion causes the explosion of a detonator which ignites the explosive charge contained in the grenade.

In order that the grenade shall only explode at the end of a sufficiently long period of time after the striker has been released, it is necessary to make the fuse of some considerable length; but since in general the striker is adapted to move rectilinearly along the axis of the grenade, it is necessary to curve the fuse in order to accommodate it inside the grenade; otherwise the grenade has to be made too high. Now this curving of the fuse is unfavorable to the proper operation of the latter and is sometimes the cause of misfires.

The present invention has now for its object to provide an improved igniting apparatus so constructed as to allow the fuse to be arranged in a straight line, while making the fuse of sufficient length and keeping the grenade at its ordinary height. Further, owing to its special design, the improved apparatus affords a complete protection for the igniting parts during the period of inoperation, and it provides a free escape for the gases on ignition. Finally, the improved apparatus does not allow of any accidental release of the striker, and consequently it affords complete safety.

The improved igniting apparatus is characterized essentially by the use of a rotary striker in combination with a safety device comprising an external lever which is designed to hold the striker in the cocked position and to allow the striker to be released only at the moment when the grenade has left the hand or the apparatus by which it is thrown.

The improved system of ignition is further characterized by the use of a special obturating device which assures a watertight closure and a complete protection for the igniting parts from external agencies, more particularly damp.

Owing to its special construction the improved igniting apparatus can be mounted on the closing plug of the grenade.

The accompanying drawings illustrate by way of example a practical form of the present invention.

In these drawings:

Figure 1 is a side elevation, the grenade being shown in section.

Figs. 2 and 3 are two side views, one from the side of the tail of the lever and the other from the side of the fulcrum of the said lever.

Fig. 4 is a plan, the lever being shown in section.

Figs. 5 and 6 are two vertical sections showing the striker in the cocked position and released position respectively.

Fig. 7 is a detail view showing the lever in perspective.

As shown in the drawings, the improved igniting apparatus comprises a plug *a* screwing into the body *b* of the grenade and inclosing all the igniting parts. This plug has a tubular body *c* in which is inserted the fuse *d* provided with its detonator *e*. The lower end of this tubular body *c* is pinched or beaded into the detonator in such a manner as to retain the fuse *d* and the detonator *e* in place.

The tubular body *c* is formed at its upper end with a flaring orifice *f* provided with ribs *g* between which the percussion cap *h* is inserted.

Above this percussion cap a covering washer *i* of tin or other soft metal is fixed in the upper edge of the plug *a* (Figs. 5 and 6). This washer is intended to constitute a tight closure which will protect completely the percussion cap *h* and the cord *d* against external agencies, and more particularly moisture, during the inoperative period.

The plug *a* is further formed at its upper end with two side walls *j* j^1 and a cross wall j^2 forming a chamber which is closed on three sides, and inside of which there is mounted a rotary striker *k*. This striker may rotate on an axle *l* carried by the two side walls *j* j^1 and it is acted upon by a spring *m* which bears against the top of the plug *a* and has a tendency to cause the striker *k* to rotate in the direction of the arrow shown in Fig. 5.

The striker *k* is kept cocked by a bent lever *n* whose shorter arm ends in a hook *o* adapted to engage a lip *p* formed on the

cross wall j^2 at the top of the plug a. This lever can therefore rotate about this lip p as a fulcrum. The shorter arm of this lever is constructed to fit over the side walls j j^1 and thus constitutes a cover with shuts in the chamber formed by the said side walls and the cross wall j^2, and thus completely protects the cover washer i and the striker k. The longer arm of the lever n is adapted to lie against the body b of the grenade (Figs. 1 and 2).

A retaining pin q engaged in holes r formed in the side walls j j^1 and in holes s formed in the side lugs of the lever n, serves to keep the latter fixed in the position in which the latter holds the striker k in the cocked position.

The improved igniting apparatus is suitable for use with grenades of all shapes and sizes intended to be thrown either by hand or by means of a blunderbuss, rifle, etc.

In order to cock the improved igniting apparatus, the striker k is turned back; then, while the latter is held back, the lever n is fitted on to the upper part of the plug a. When this lever is in its place (Figs. 1, 2 and 5), the tail of this lever presses upon the striker k and thus holds it in the cocked position. The pin q is then inserted in the holes r and s of the side walls j j^1 and of the lever n. Then the latter is therefore completely locked and renders any accidental release of the striker k impossible.

When the grenade is to be thrown by hand, it is grasped in such a manner as to keep the tail of the lever n pressed back, and then the retaining pin q is removed, the tail of the lever n being held pressed against the body b of the grenade by the pressure of the hand; the striker remaining cocked.

If the grenade is to be thrown by means of a blunderbuss, the retaining pin q is removed only after the grenade has been inserted into the blunderbuss barrel, so that the tail of the lever shall be pressed against the body of the grenade by the wall of the blunderbuss barrel.

As soon as the grenade has been thrown either by hand or by means of a blunderbuss, the lever n being no longer pressed down, yields to the pressure of the striker k, pivots on the lip p of the head of the plug a and drops off. The striker k being pulled by its spring m, turns on the axle l in the direction of the arrow shown in Fig. 5, meets the covering washer i which it pierces, and it strikes the percussion cap h which ignites the fuse.

The gases produced by the explosion of the percussion cap force off the washer and thus find immediately an escape into the atmosphere through the free passages situated between the ribs g.

On the termination of its combustion the fuse d ignites the detonator e which explodes the explosive contained in the grenade.

The proper working of the grenade is always assured and no misfire can take place because during the period of inoperation, the percussion cap h and the fuse d which are contained in the plug a, are completely protected from external agencies, more particularly damp, since the chamber in which they are contained is closed-in in a tight manner at one end by the washer i and at the other end by the beading of the end of the tubular body c into the detonator e.

The present igniting apparatus can be constructed in all shapes and dimensions, and the constructional details of its various constituent parts may vary.

Claim:

In a grenade, a tubular plug having the bore flared outwardly at its upper end, a plurality of spaced longitudinally disposed ribs integral with the flared portion of the plug, the spaces between the ribs constituting vents for permitting of the escape of gases, a fuse mounted in the lower portion of the bore, a detonator carried at the lower end of the plug, a percussion cap, mounted in the top of the bore of the plug, a washer snugly fitted in the top of the plug above the cap and designed to close the vents, a casing formed about the top of the plug, a spring pressed striker pivoted in the casing, and closing means for the casing designed to releasably hold the striker in a cocked position.

The foregoing specification of my improved apparatus for igniting grenades, signed by me, this eleventh day of February, 1919.

FERDINAND LAMBERT LEBLANC.