Feb. 14, 1933. V. NIGERADSE 1,897,709

HAND GRENADE

Filed June 8, 1931 2 Sheets-Sheet 1

Fig. 1.

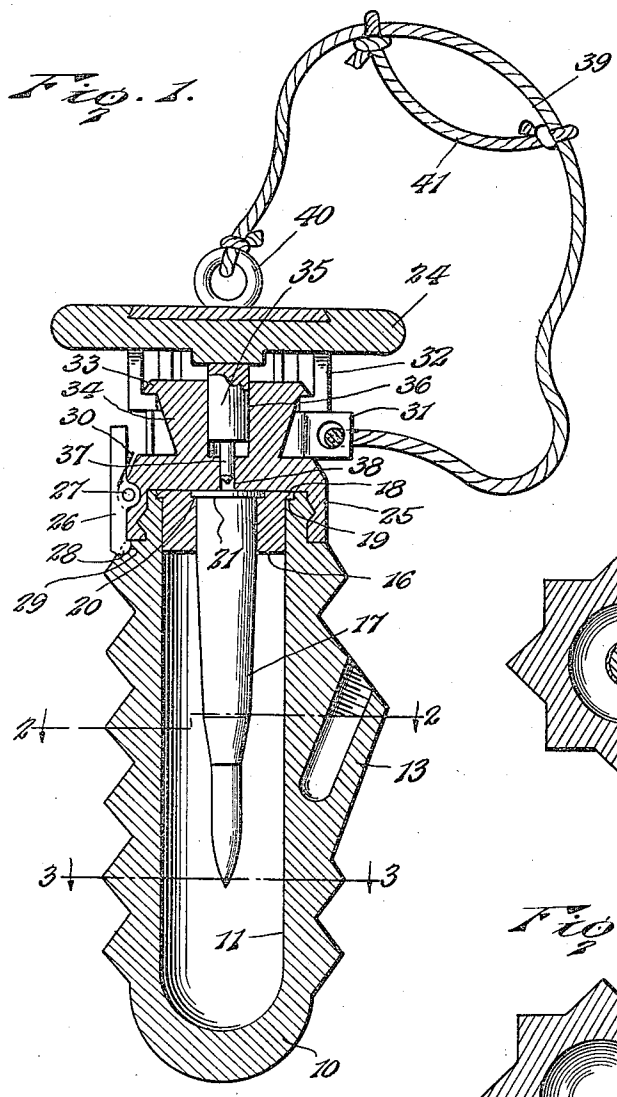


Fig. 2.

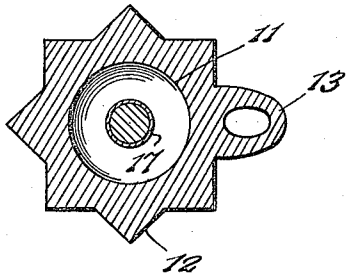
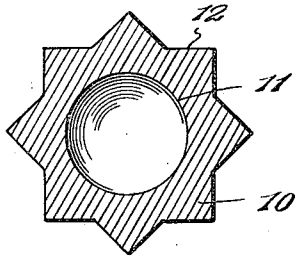


Fig. 3.



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Feb. 14, 1933. V. NIGERADSE 1,897,709

HAND GRENADE

Filed June 8, 1931 2 Sheets-Sheet 2

Fig. 4.

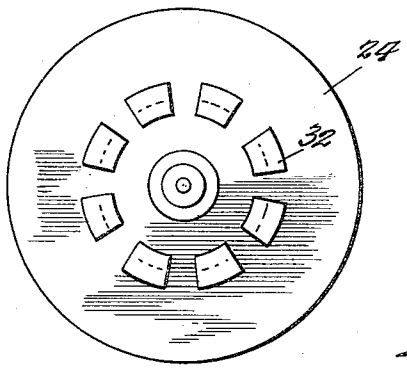


Fig. 5.

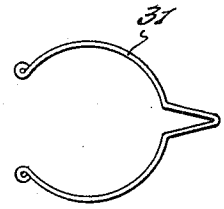


Fig. 6.

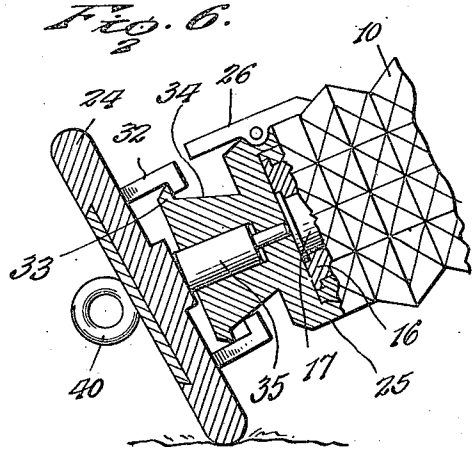


Fig. 7.

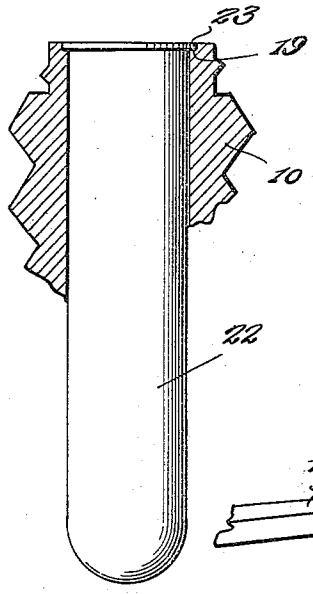
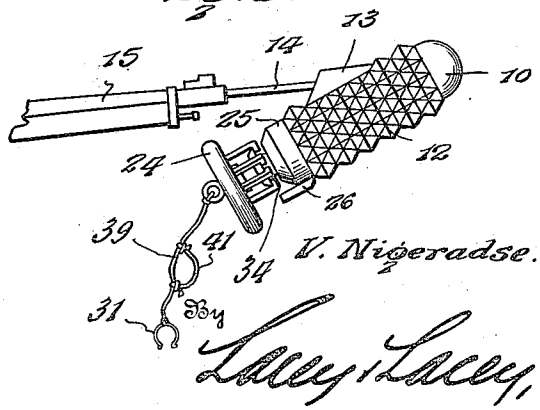


Fig. 8.



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Patented Feb. 14, 1933 1,897,709

UNITED STATES PATENT OFFICE

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HAND GRENADE

Application filed June 8, 1931. Serial No. 542,923.

This invention relates to hand grenades.

An object of the invention is to provide a hand grenade that is carried unloaded, that is, without explosive charge, until it is ready to be thrown.

A further object is to provide a base detonating hand grenade which may be loaded by simply inserting an ordinary rifle cartridge underneath the exploder for use against personnel, and substituting for the rifle cartridge a special cartridge when destructive effect is desired.

A further object is to provide a hand grenade which may be also used as a rifle grenade, in either case the grenade being armed, after being loaded, by simply withdrawing a ring from underneath the exploder head to release the head to strike the firing pin upon contact of the grenade.

A further object is to provide an extremely simple and effective grenade which may be formed of a few strong and durable parts which may be easy to manufacture and will not easily get out of order.

With the above and other objects in view the invention consists in certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of this specification:

Figure 1 is a longitudinal sectional view through my improved grenade,

Fig. 2 is a cross sectional view on the line 2—2 of Fig. 1,

Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1,

Fig. 4 is a bottom plan view of the exploder head,

Fig. 5 is a plan view of the exploder head release ring,

Fig. 6 is a detail sectional view showing how the grenade may be exploded regardless of the position thereof upon impact,

Fig. 7 is a detail sectional view showing a special cartridge for demolition purposes, and

Fig. 8 is a side elevation showing the grenade in use as a rifle grenade.

Referring now to the drawings in which like characters of reference designate similar parts in the various views, 10 designates the shell of the grenade, the same being provided with the usual longitudinal bore 11 constituting the explosive chamber, and being grooved longitudinally, transversely and diagonally, as shown at 12, to produce fragmentation. The shell is provided on one side with a bored out extension 13 to receive, when desired, a ram rod 14 for permitting the grenade being shot from a rifle 15, as best shown in Fig. 8.

Within the bore of the shell there is disposed a ring adapter 16 to receive and position a rifle cartridge 17 axially in the bore of the shell. The adapter is provided with a marginal flange 18 which seats on an annular shoulder 19 formed in the shell to limit insertion of the adapter in the shell. The adapted is also provided with an annular shoulder 20 to receive the rim 21 of the cartridge and properly locate the percussion-cap of the cartridge underneath the hereinafter described firing pin of the exploder.

The explosive effect of the rifle cartridge is sufficient to produce necessary fragmentation of the grenade for use against personnel. However, when demolition effect is desired, it is desirable to remove the adapter 16 and discard it and then insert a special high explosive cartridge 22 in the bore of the shell, as best shown in Fig. 7. This cartridge is preferably of sufficient magnitude to snugly fit in the bore of the shell and is provided with a rim 23 which seats on the above described shoulder 19 in the shell and positions the percussion-cap of the high explosive cartridge in alinement with the exploder firing pin.

The exploder is of the base detonating type and comprises a movable disk head 24 and a socket base 25 which is screwed onto the open end of the shell, and upon which the head is loosely mounted as will be hereinafter more specifically described, to removably at-

tach the exploder to the shell. A catch 26 is pivoted by a pin 27 on the exterior of the exploder base and is terminally equipped with a lip 28 which seats in a socket 29 formed in the shell when the base has been screwed up tight against the ring adapter 16 and locks the base against accidental backing off from the shell. A spring 30 is disposed in a suitable recess in the base underneath the free end of the catch and yieldably holds the catch in operative position.

The exploder head 24 is normally maintained stationary on the base 25 preferably by means of a split resilient ring 31 of the general contour shown in Fig. 5. The ring is seated on the base 25 underneath a circular series of hooks 32 which are rigid and integral with the underneath face of the exploder head. The bills of the hooks engage underneath a marginal stop flange 33 formed integral with a substantially frusto-conical axial extension 34 formed in one piece with the base and constituting a guide for the hereinafter described firing pin.

The extension 34 tapers, or becomes smaller, toward the screw base so that when the split ring 31 is withdrawn to arm the exploder, the hooks 32 may move axially as well as laterally without obstruction toward the screw base. The purpose of this is to permit the exploder head sliding and canting on the base, as shown in Fig. 6, so that the head will strike the firing pin regardless of the position of the grenade when it strikes the ground.

A firing pin 35 is slidably received in an axial bore 36 formed in the extension 34. The firing pin is terminally reduced, as shown at 37, and is received in a passage 38 in the socket base. The firing pin is thus disposed in axial alinement with the cartridge receiving shoulder of the shell and maintained in position to strike the percussion-cap of the rifle or other cartridge.

A string or cord 39 is terminally connected to the release ring 31 and is also connected to the exploder head preferably by means of a ring 40. The cord forms means for withdrawing the release ring to arm the exploder and also forms a grip by means of which the grenade may be thrown if desired. The cord is provided with a noose 41 by means of which the grenade may be worn upon the bomber's belt.

The grenade is carried unloaded and when the bomber is ready to throw the grenade, the base is unscrewed and the rifle cartridge inserted in the adapter ring. Then the base is screwed onto the shell until the lever 26 catches in the seat 29. The cord 39 is now pulled to withdraw the release ring 31. The grenade may be now thrown by means of the cord, or otherwise, in the usual manner. When the grenade makes contact, the heavy exploder head 24 plunges forward and drives the firing pin into the percussion-cap of the cartridge to explode the grenade. This operation of the parts takes place regardless of whatever position the grenade may strike its target, since the heavy exploder head may cant upon the exploder base to drive home the firing pin, as shown in Fig. 6, should the grenade strike in horizontal position or any inclined angular position.

Having thus described the invention, I claim:

1. A grenade comprising a frangible shell, a cartridge holder in the shell, a base detonating exploder pivotally and slidably mounted on the shell, and means integral with the shell for receiving a ramrod.

2. A grenade comprising a frangible shell adapted to receive a cartridge in its bore, a base removably secured to the shell, an exploder head, hooks integral with the head and mounting the head to slide and cant on the base, a firing pin carried by the base in the path of movement of the exploder head, and an arming device engaging said hooks and normally holding said head and said base separated.

3. A grenade comprising a frangible shell, a cartridge holder in the shell, a base removably secured to the shell, an exploder head loosely mounted on the base, a firing pin adapted to move axially through the base and impinge against the percussion-cap of the cartridge when struck by the exploder head, a stop shoulder carried by the base, hooks integral with the head engaged underneath said stop shoulder, and an arming ring interposed between said hooks and said base and when withdrawn releasing said hooks from said shoulder.

4. A grenade comprising a frangible shell forming an explosive chamber, a rifle cartridge ring adapter in said chamber, a shoulder seating said adapter in said chamber, said adapter being discardable to permit of a high explosive cartridge being disposed in said chamber with its rim seated on said shoulder, an exploder on the shell, and means for normally holding said exploder unarmed.

In testimony whereof I affix my signature.

VLADIMIR NIGERADSE.