BOMBS
AND
HAND GRENADES

British, French and German

A HANDBOOK SHOWING THEIR CONSTRUCTION AND TECHNICALITIES, GIVING FULL INSTRUCTIONS AS TO HOW TO USE AND HOW TO RENDER USELESS

BY

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EXPLOSIVES IN GENERAL.

KINDS OF EXPLOSIVES.

(a) Explosives may be classed as follows:

1. Propellant.
2. Disruptive.
3. Detonators.

1. Propellant.

(a) Gun Powder, Cordite, etc., and all powders used in fire arms.

(b) These are known as "Low Explosives."

(c) Propellant is an explosive having a rate of combustion regulated to a certain extent between time limits.

2. Disruptive.

(a) Lyddite, Ammonal, etc., and all powders or explosives used in grenades, shells, torpedoes, etc.

(b) These are "High Explosives."

(c) High Explosives are useless as "Propellants" as the force is generated so quickly that it destroys substance in contact with it, instead of projecting them to a distance.

3. Detonators.

(a) Detonators or Explosives are used to give the initial shock which generates the explosion in others.

(b) In Detonators the initial force of the explosion is sufficient to break down the structure of the powder so that the flame reaches every particle of the mass, thus causing an instantaneous ignition called "Detonation."

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(c) No. 8 General Service Detonator consists of a copper tube, painted dark red and partly filled with Fulminate of Mercury. Contains thirty-two grains of F. of M. Is very sensitive.

PRECAUTIONS.

When inserting a fuze in a detonator stop as soon as you meet resistance. The detonator must be crimped to the fuze with pliers. (Never use the teeth.)

Detonators are very sensitive and have been known to go off with the heat of the hand.

1. Gun Powder.

(a) This is a mechanical mixture composed of: Saltpeter 75%, Charcoal 15%, Sulphur 10%.

2. Nitro Cellulose Service Powders (Cordite).

(a) Cordite is one of these Nitro Cellulose service powders and is made by treating Gun Cotton with Ether or Alcohol.

3. Gun Cotton.

(a) Discovered 1848 A. D.

(b) This is the principal ingredient of modern service powders.

(c) It is prepared by immersing purified cotton wool in Nitric Acid, carefully dried and heated with a mixture of Concentrated Nitric and Sulphuric Acids.

(d) It is then reduced to a pulp in a beating machine boiled by means of steam and given another thorough washing. It is then ready to be molded.

It can be obtained in two forms (1) Dry, (2) Wet.

Dry Gun Cotton is made up in 1 oz. dry primers, cone shaped, perforated in centre for detonator. They are packed in metal cylinders, each containing ten, threaded on a tape. Dry gun cotton is dangerous to handle, being susceptible to both heat and friction.

Wet Gun Cotton is made up in 15 oz. slabs 6 inches by 3 by 1⅜ and is packed in tin air-tight boxes, containing 16 slabs; each slab is perforated in centre for a primer.

4. Nitro Glycerine.

(a) Discovered in 1847.

(b) This is obtained by the action of Nitric and Sulphuric Acids on Glycerine.

(c) Pure Nitro Glycerine is a colourless, oily liquid.

(d) It will explode when heated to about 360 degrees.

(e) In liquid form it is too dangerous to use.

(f) To overcome this, there has been found a substance which absorbs it, this is known as "Fuller's Earth."

5. Dynamite.

(a) Consists of Nitro Glycerine absorbed in "Fuller's Earth."

6. Picric Acid.

(a) This is the strongest explosive known.

(b) It is a solid, pale yellow crystalline.

(c) It is formed by the action of strong Nitric Acid on Carbolic Acid, Sulphuric Acid.

7. Melinite.

(a) Picric Acid and Collodion make the French explosive Melinite.

8. Lyddite.

(a) It is formed from Picric Acid and Vaseline, melted and solidified.

(b) If Lyddite comes in contact with metal it attacks this metal and forms a detonating compound; for this reason "Lyddite shells" are varnished on the inside.

(c) It is also hygroscopic (i. e.—it will absorb moisture).

9. Tri-Nitro-Toluene (TNT).

(a) A famous German explosive.

(b) Toluene is itself a liquid hydro-carbon and is obtainable along with benzine from coal tar.

(c) This is obtained by heating Toluene with a mixture of Nitric and Sulphuric Acids.

(d) It is not as powerful as Lyddite but is not hygroscopic and does not form in detonating compound if it comes in contact with metal.

(e) It is safe to handle and hard to explode.

10. Ammonal.

(a) This explosive is used throughout the Austrian Army and Navy.

(b) It consists of TNT, Ammonium Nitrate, Charcoal and Aluminum powder.

(c) It is a safe explosive to handle but has the drawback of being hygroscopic.

11. Fulminate of Mercury.

(a) Detonators are generally loaded with this explosive.

(b) It is composed of: Three parts Mercury — dissolved in thirty-six parts Nitric Acid — with eleven parts Alcohol added.

(c) A little "Potassium Chlorate" is sometimes added to detonators.

12. Percussion Caps.

(a) Composed of: Potassium Chlorate, Fulminate of Mercury, Antimony and Ground Glass.

13. Nitrogen.

(a) It is an inert gas and does not combine easily with other gases.

(b) It is not hard to separate.

FUZES AND LIGHTERS.

BRITISH FUZES.

(a) At the present time (1918) there are three fuzes in general use in the British forces.

No. 9 Bickford time fuze.

Instantaneous fuze.

Commercial fuze.

1. No. 9 Bickford Time Fuze.

(a) Color — black.

(b) Smooth, outside.

(c) Burns ½ inch to the second or 4 ft. per minute.

(d) Consists of a small trail of fine gun powder surrounded with flax and covered with gutta percha with waterproof tape bound around the outside.

(e) This fuze will burn under water and is quite safe; it is the fuze most used.

2. Instantaneous Fuze.

(a) Color — orange.

(b) A thread snaked around the outside makes the fuze rough to feel.

(c) Burns thirty yards per second.

(d) Consists of three strands of quick-match surrounded by flax and covered with gutta percha with waterproof tape bound around the outside.

3. Commercial Fuze

(a) Color — white.

(b) Smooth outside.

(c) Burns one inch per two seconds or four feet per minute.

(d) Consists of a fine train of gun powder surrounded with flax and covered with gutta percha and bound in waterproof tape —a fine white piece of cotton is bound around the outside.

REMARKS ON FUZES.

All fuzes come 100 feet to the coil.

Before using fuze always test its burning rate by trying several pieces from ends and centre.

Never use cracked fuze.

A piece of safety fuze must always be attached to instantaneous fuze for testing purposes.

FUZE JOINTS.

In joining fuzes, cut ends slantwise, place together and bind with waterproof tape.

NOTE: The Germans are very fond of faking fuzes, so great care should be taken with any fuzes found in enemy trenches or stores.

LIGHTERS.

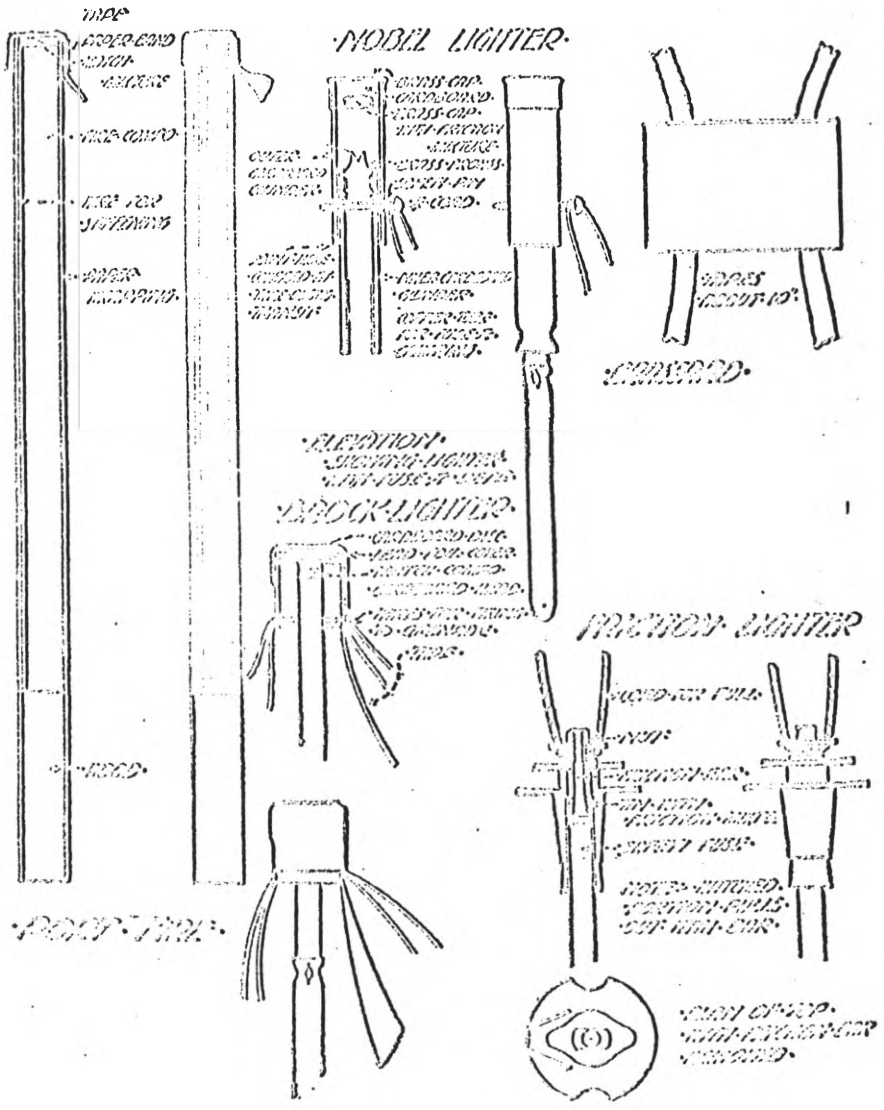
(1) Nobel Lighter.
(2) Brock Lighter.

The Nobel Lighter consists of two cardboard tubes one fitting over the other. Inside the top end of the outer there is a layer of friction composition. Fixed to the top end of the inner tube is forked brass frictionhead, which is held in position by a safety pin passing through both tubes. Inside the other end of inner tube is a small copper band; there is a narrow tape band with loose end. To light fuze, first pull off tape and safety pin then press down tube and turn slightly. This lighter has a five second fuze attached.

The Brock Lighter consists of a match-head and fuze combined. The head consists of a small cardboard cap filled with friction composition and covered with waterproof paper. With this type of lighter an armlet covered with match composition is worn by the man on the left forearm.

To ignite fuze first pull off waterproof paper and then strike head against armlet (brassard). Time of fuze five seconds.

VARIOUS TYPES OF LIGHTERS.

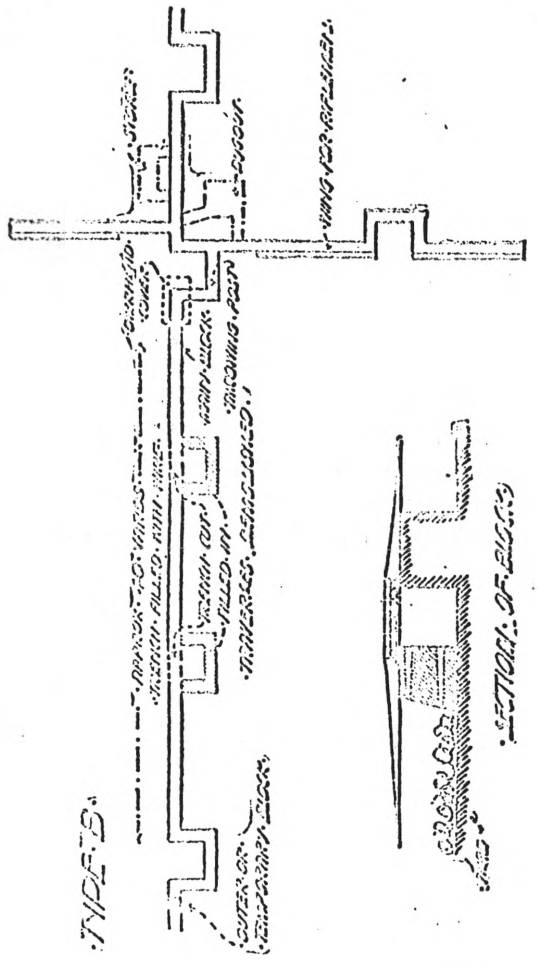


BLOCKING TRENCHES AGAINST GRENADE ATTACK.

All bombers must have a knowledge of the best methods of blocking a trench. In all attacks they should be supported by a party of men with sandbags and tools under an experienced N. C. O. so that whilst the bombers are keeping the enemy at bay a strong barricade can be built as quickly as possible. It is advisable to work along the trench for a distance of 50 yards or so further than the point to be barricaded, in order to drive the enemy back out of grenade throwing distance. A second barricade of a temporary nature should be erected at this advanced point and constant fire kept up by the bombers while a working party fill in the trench between the advanced and near barricades as rapidly as possible, placing wire in it to hinder the enemy from digging it out. It is advisable as a rule to attach a small number of engineers to the party with a view to blowing down the enemy's trench by explosives. As soon as a clear field of fire has been established from the point to be held, the bombers retire from the advanced barricade. In case of a straight trench with traverses, the traverses in a portion of it should be cut away and the earth be used to fill the recesses. A strongly built sandbag breastwork is then made across the trench with loopholes for observation and fire; the trench behind the breastwork is roofed over to give protection from grenades, with a traverse to protect the men from grenades which burst beyond them. To hinder any attempt of the enemy to rush across the cleared portion of the trench, loose strands of wire should be placed in it. A Lewis gun, if available, can be mounted on the breastwork. In order to guard against damage to the breastwork by grenades continually being thrown against it and bursting at the foot of it, a catch pit can be dug into which they would roll before bursting.

PERMANENT BLOCKS—TYPE A.

PERMANENT BLOCKS—TYPE B.



CHEMICAL AND SMOKE BOMBS

TRIPLET CANDLE SMOKE BOMBS.

Triple Candle Smoke Bomb consists of:

Three cardboard cylinders, each cylinder containing petrol and coal dust, bound together with two wire bands and covered with white cotton with fuze attached.

To make smoke screen, four per minute on a twenty-five yard front is sufficient.

No. 1 Threlfallite.

A tin about five inches by three inches in diameter containing red phosphorus, a detonator, safety fuze and lighter. When detonated it causes a radius of dense smoke of about twelve yards radius. This bomb is not dangerous.

No. 2 Threlfallite.

Contains white phosphorus in petrol. Through rust leakage may occur and the petrol evaporate causing the phosphorus to light. The size of the tin is three inches by three inches in diameter, also a fuze and detonator.

This bomb should be stored away from anything else.

Very bad for the eyes and lungs.

GAS BOMB M. S. K.

It is an iron sphere, eight seconds fuze, contains fluid which smells like pineapple, produces tears and causes violent headaches.

Chief use for dugouts and mopping up.

PRECAUTIONS.

Smoke bombs should always be stored separately from explosives. Store in a cool dry place.

Phosphorus bombs should be examined frequently. If tin is not air tight destroy. In opening be careful of friction.

Always throw as far as possible.

AMMONAL TUBES.

(Bangalore Torpedoes.)

These tubes are about three inches in diameter and about twelve feet long. They are filled with Ammonal with a Gun Cotton primer with detonator and time fuze attached. Both ends are blocked with wooden plugs, one plug with hole in centre allowing fuze to pass through. They are used for blowing up enemy's Barbed Wire.

EQUIPMENT OF BOMBERS.

Bombers should be as lightly equipped as possible. In the case of grenade operations and raids, the men who are actually to throw grenades should not carry rifles, but should be armed with revolvers if they have been taught to use them, or with a bayonet or special stabbing knife or weapon for hand-to-hand fighting, such as an axe or knob-kerry. In a general attack all men must carry rifle and bayonet. Bombers must therefore be taught to throw with rifle slung over left shoulder. Steel Helmets should be worn by all men taking part in grenade attacks.

BRITISH HAND GRENADE NO. 1 (Percussion).

Weight Complete 2 lbs.

DESCRIPTION.

The grenade consists of a brass cylinder encircled by a narrow cast iron ring serrated to break up into fragments. The cylinder is mounted on a wood block to which a cane handle five inches long is attached. Four streamers are nailed to this end of the body. Total length of grenade 12¼ inches. The brass cylinder or body of the grenade is filled with explosive, and has its upper end closed by the detonator holder, fixed by three screws.

This holder carries two pins for screwing the detonator. The body has two knobs and two indicating stops fitted above the serrated ring. The firing needle is carried in the removable cap, which has two grooves formed on it in which slides the knobs on the body. The cap is centrally placed for the safety pin.

"Remove," "Travel" and "Fire" are marked on the outer surface of the cap. When the knobs on the body are opposite the word "Remove" the cap can be pulled off.

When opposite "Travel" cap cannot be removed.

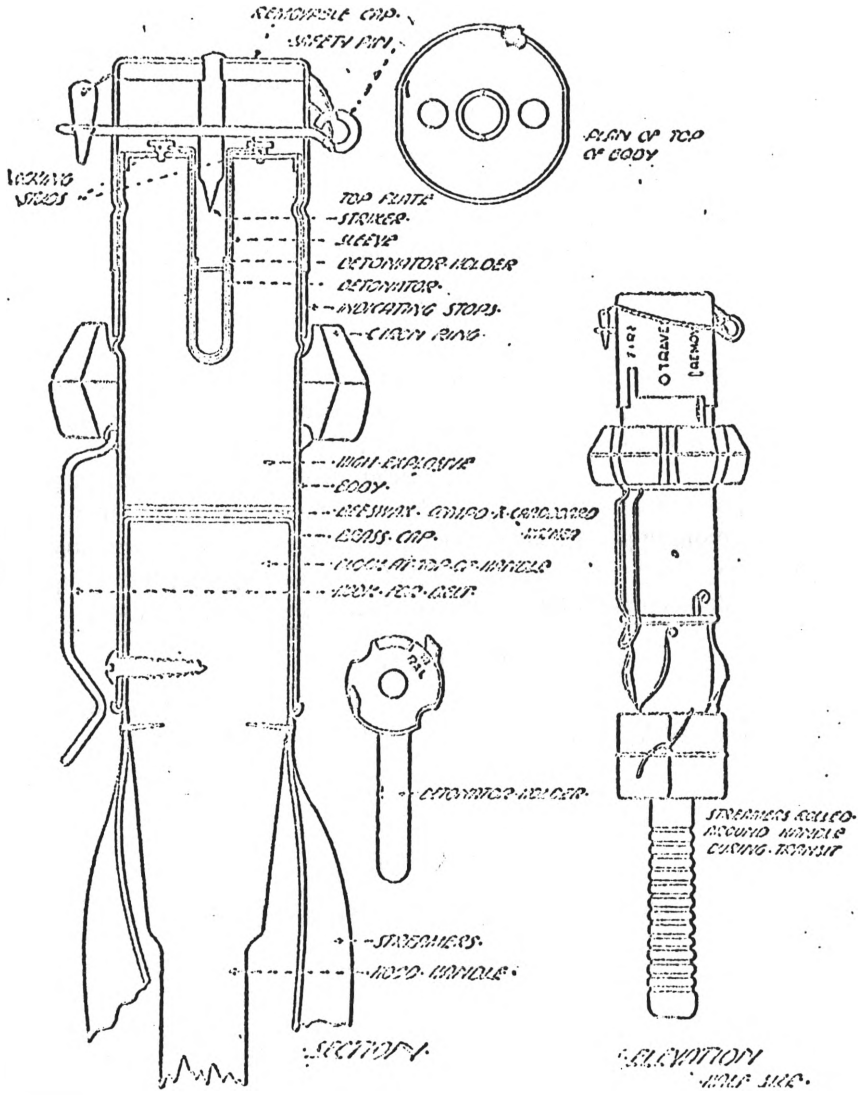
When opposite "Fire" the cap can be pushed down so that the firing needle can pierce the detonator. When the grenade is thrown, owing to its weighted head and streamer on handle, it will fall on its head and the firing needle will be forced into the detonator.

INSTRUCTIONS.

To Prepare for Use.

1. Remove the cap (leaving the safety pin in) and insert detonator by pushing it home and turning it to the left.

BRITISH HAND GRENADE NO. 1, R. L.



Special detonators are provided with the grenades.

2. Replace the cap and turn to "Travel."

To Fire.

1. Turn to "Fire."

2. Immediately before throwing pull out the leather strip from the safety pin and free the pin.

3. Hold the grenade in the right hand, pull out the safety pin with the left and throw.

SPECIAL PRECAUTIONS.

Great care should be taken to prevent the grenade from being jarred during the action of throwing. Detonators deficient of the spring clip should not be used. Cylinders containing ten detonators, No. 1 Hand Grenades marks 1 and 11, are issued separately.

NOTE: If the grenade is not used the detonator can be removed, and cap replaced and turned to "Travel."

BRITISH HAND GRENADE NO. 2 (Percussion).

Tonite or Mexican Grenade.

Weight Complete 1 lb.

DESCRIPTION.

The grenade consists of (1) Handle, (2) Body, (3) Special Detonator.

HANDLE.

Cane 7 inches long, rough to prevent the grenade slipping out of the hand, total length 12½ inches; a 1½ inch tape, 1 yd. long, is wound around this end and is kept in place by a thin binding thread. When the latter is broken the tape is free to form a tail and so assist the grenade to fall on its head.

A small steel rod about 2 inches long, is fixed to the other end of the handle by means of a brass collar rivetted to the cane. The end of the steel rod screws into the body of the grenade.

BODY.

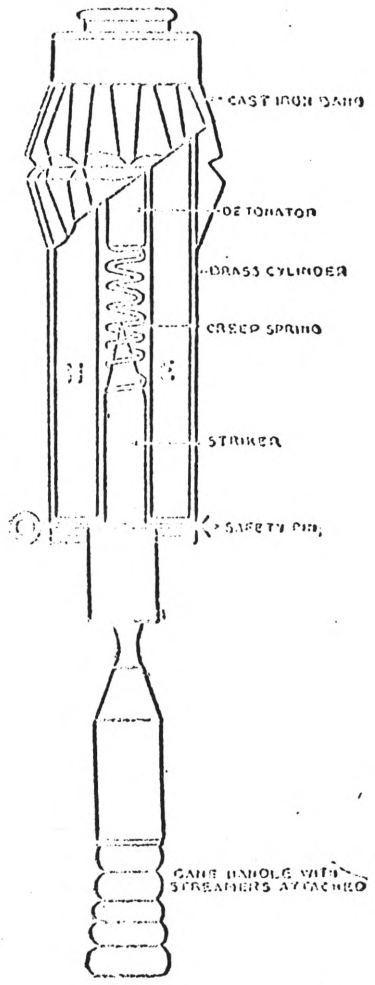
Consists of a brass cylinder, 4¼ inches by 1¼ inches diameter. A band of ribbed cast iron is fixed on to the end near the head.

This Band.

(a) Helps to weight the head of grenade.

(b) Provide the necessary man-killing fragments. There is a small tube passing down the centre of the large cylinder and the

BRITISH HAND GRENADE. NO. 2.



intervening space is filled with explosive. This tube contains the spring, striker and detonator (when loaded) head and tape streamers cause it to fall on its head. On reaching the ground the body of the grenade is stopped by the impact, and the striker being free flies forward compressing the spring sufficiently for the needle to pierce the detonator and thus explode the grenade.

SPECIAL PRECAUTIONS.

(1) Great care should be taken to avoid jarring the grenades against any obstruction when in the act of throwing.

(2) The grenade is in a very dangerous condition when once safety pin has been removed and special attention should be paid to this.

(3) The detonator for grenades Nos. 2 and 3 are similar and care should be taken not to mix them.

PACKAGE OF GRENADE.

The grenades are packed in wooden boxes containing ten grenades and a small box of ten detonators with wooden partitions to prevent movement during carriage.

BRITISH HALES RIFLE GRENADE NO. 3 (Percussion).

Weight Complete 1 lb. 5 oz. Maximum Range 185 yds.

BODY.

Serrated steel, filled with explosive. Down the centre of explosive is a brass tube into the forward end of which the detonator is inserted. The body is closed by the base piece.

This carries the striker pellet, two retaining bolts, wind vane, releasing socket and safety pin. To the base piece is fixed a base plug carrying the spring clip and a ten inch steel rod.

DETONATOR HOLDER.

Consists of a special brass tube which screws into the head of the grenade. It is 2½ inches long and contains a detonator cap. Until the detonator is inserted the head of the grenade is closed by an ebonite screw plug.

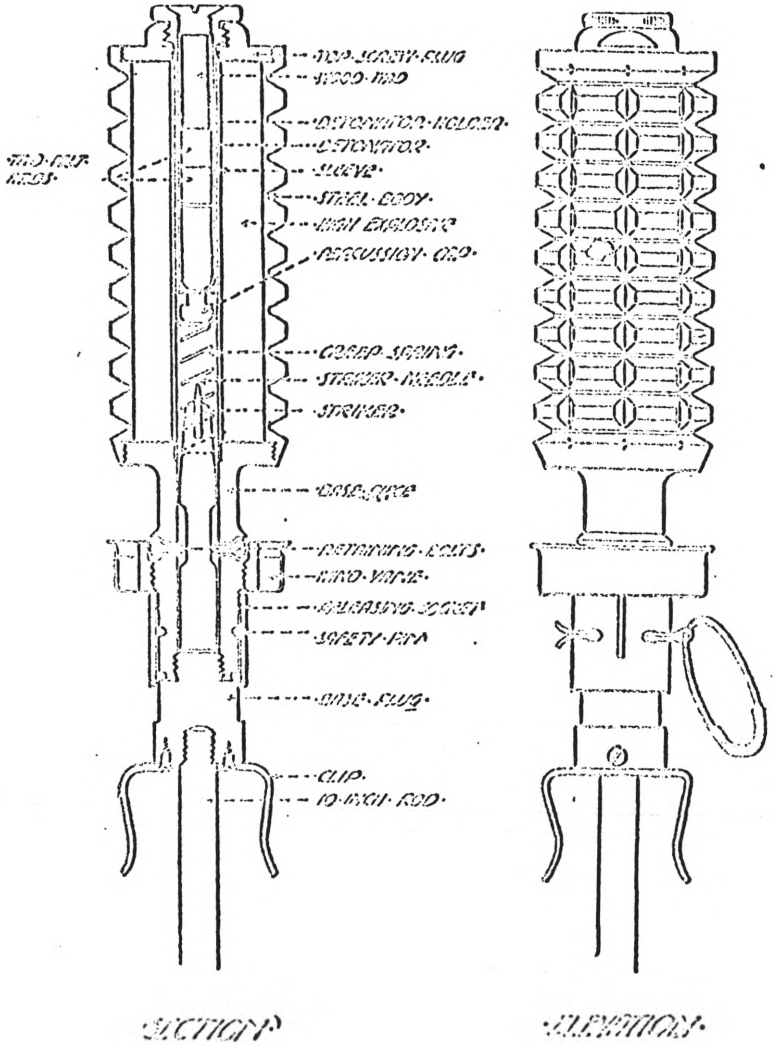
CARTRIDGE.

A special blank cartridge is supplied to fire the grenade.

ACTION.

The action of the grenade on being fired is as follows: The wind vane revolves as the grenade travels through the air; after a few turns of the vane the retaining bolts are no longer held in position by its inner surface and fall out; on impact the striker pellet sets forward against the creep spring on the detonator cap, thus firing the grenade.

BRITISH RIFLE GRENADE .303 (HALES) NO. 3.



SECTION

ELEVATION

This grenade is very safe to handle, as it cannot be fired by knocking or dropping on the ground; it must travel through the air some distance before the retaining bolts fall out.

INSTRUCTIONS.

To Prepare for Use.

1. Holding the grenade head down so as to make certain that the needle is not free, remove the ebonite screw plug.
2. If correct, screw in the detonator holder.

To Fire.

1. Lower the rod into the barrel of the rifle, and clip over the muzzle.
2. Load the rifle with special blank cartridge.
3. Before firing withdraw safety pin.

PRECAUTIONS WHEN FIRING.

1. The grenade should be tapped on the hand before inserting detonator to insure that the striker pellet is properly held in place by the retaining bolts.
2. The wind vane and the releasing socket must not be tampered with.
3. The safety pin must not be removed before the grenade has been inserted in the rifle.
4. The grenade must not be fired with ball cartridge as this may burst the rifle.
5. The rod should be oiled but only slightly, before placing it in the barrel of the rifle.

INSPECTION.

Points that Should be Noticed.

1. That the wind vane is covering the retaining bolts.
2. That the releasing socket and safety pin are correctly in place.

3. That the striker pellet is held correctly by the retaining bolts which fit into a groove in it and should prevent it from moving.

4. That the creep spring is in position over the striker pellet.

5. That the screw thread cavity for the detonator holder is clean and clear.

6. That rod is straight and clean.

DETONATOR HOLDER.

Consists of a special brass tube which screws into the head of the grenade. It contains a detonator and detonator cap. Until the detonator holder is inserted the head of the grenade is closed by an ebonite screw plug.

CARTRIDGE.

A special blank cartridge is supplied to fire the grenade.

ACTION.

On the shock of discharge, the releasing socket sets back, the retaining bolts are no longer held in position by its inner surface and fall out. On impact the striker pellet sets forward against the creep spring on to the detonator cap, thus firing the grenade.

INSTRUCTIONS.

Prepare for Use.

1. Holding the grenade head downwards, remove the ebonite screw plug, and tap the grenade on the hand so as to make certain that the striker is not free.

2. If correct, screw in the detonator holder.

To Fire.

1. Lower the rod into the barrel of the rifle

2. Load the rifle with the special cartridge.

3. Immediately before firing, withdraw the safety pin.

If the grenade is not fired, replace the safety pin.

SPECIAL PRECAUTIONS.

1. The grenade should be tapped on the hand before inserting the detonator holder to ensure that the striker pellet is properly held in place by the retaining bolts.

2. The releasing socket must not be tampered with.

3. The safety pin must not be withdrawn before the grenade has been inserted in the rifle.

4. The grenade must not be fired with a cartridge with a bullet in it, as this may burst the rifle.

5. The rod should be oiled, but only slightly, before placing it in the barrel.

INSPECTION.

Points that Should be Noticed.

1. That the releasing socket and safety pin are correctly in place.

2. That the striker pellet is correctly held by the retaining bolts, which fit into a groove in it and should prevent it from moving.

3. That the screw thread and cavity for the detonator are clean and clear.

4. That the creep spring is in position over the striker pellet.

5. That the rod is straight and clean.

6. That the metal at the lower end of the detonator tube is correctly turned in over the detonator cap, so that the latter is securely held. If it is not, the cap may come out on the shock of discharge, strike the needle and so cause a premature explosion.

PACKING.

The wooden box provided contains twelve grenades, twelve detonator holders, containing detonators in a tin box, and twelve special blank cartridges in a tin box.

MILLS HAND GRENADE (Time).

Weight Complete 1 lb. 3 oz.

BODY.

Cast iron, serrated to provide numerous missiles on detonation. Into one end is screwed a centerpiece with separate recesses for the striker and the detonator.

The striker is kept cocked against its spring by its head catching on the end of the striker lever when the latter is lying against the body of the grenade.

The lever is retained in this position by the safety pin.

IGNITER SET.

This is a separate unit consisting of a cap, cap chamber, safety fuze and detonator.

On withdrawal of the safety pin, the lever springs outward under the pull of the striker spring, thus releasing the striker which fires the cap.

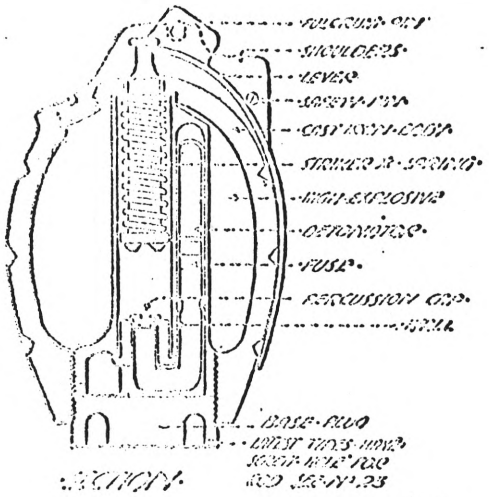
The safety fuze burns about five seconds, and then fires the detonator.

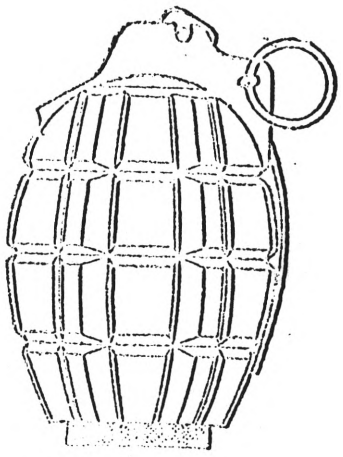
INSTRUCTIONS.

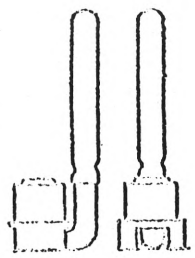
To Prepare for Use.

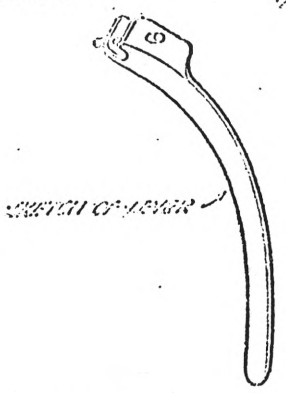
1. Examine the safety pin, and see that it is easy to withdraw.
2. Unscrew the base plug, and insert igniter.

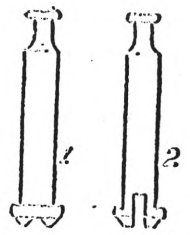
GRENADE, HAND, NO. 5. MILLS.

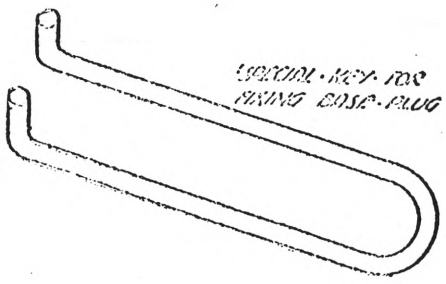












3. Screw in the base plug with the key provided, taking care that it is screwed home.

To Throw.

1. Hold the grenade in the right hand in such a position that the lever is held securely against the body of the grenade by the fingers with the lever along the second joints of the fingers.

2. Withdraw the safety pin with the left hand, using a hook if preferred, still keeping a firm grip on the lever.

3. Throw the grenade.

SPECIAL PRECAUTIONS.

1. Do not release the lever before throwing the grenade.

2. It is essential that the lever should be held securely against the body of the grenade, otherwise the collar which holds fast the striker may release it and so ignite the fuze.

3. The precautions against using grenades as filled grenades after they have been used as dummies for practise is particularly applicable to this type.

4. Before inserting igniter, see that safety pin is not broken, or badly corroded, and that the fuze is not cracked or damaged, as these defects may accelerate time of burning.

INSPECTION.

1. That there are two striking points on the perimeter of the lower end of the striker, and not one central point. A central point, as used in Stokes Mortar Bombs, will cause a premature explosion in a Mills.

2. That the safety pin is not broken or badly corroded and that the ends are correctly splayed, so that the pin cannot be jolted out, but yet is not too difficult to withdraw.

3. That the jaws of the lever are a good fit, and hold the top of the striker correctly.

4. That the wax seal around the top of the striker is unbroken.

5. That the mouth of the detonator is closely crimped around the safety fuze, so that no flash can enter the detonator except through the fuze.

6. That the fuze is in good condition, and not cracked or damaged by being bent, and is not loose in the cap.

PACKING.

The grenades are packed twelve in a wooden box, with a cylinder containing twelve igniters, and a key for screwing in the base plug.

BRITISH HAND GRENADE NO. 6.

Manufactured at Woolwich by the War Department.
Type, Time Fuze, Friction Lighter, Weight.

PARTS.

(1) Tin cylinder with beeswax composition to keep out moisture.

(2) No. 8 MK 7 Detonator — short length of safety fuze.

(3) Friction lighter in brass holder.

(4) Two nail heads to hold friction lighter holder.

(5) The friction lighter is a small brass pin with a head with a string loop at one end and the other with a saw line edge. This is inserted into the holder through a composition of gun powder, ground glass, etc.

(6) A cardboard cap over upper end of grenade in transit.

(7) A wooden plug in lighter recess.

To Prepare.

(1) Hold grenade in right hand, place finger in string loop on lighter, give a sharp pull, then throw with an overhand motion.

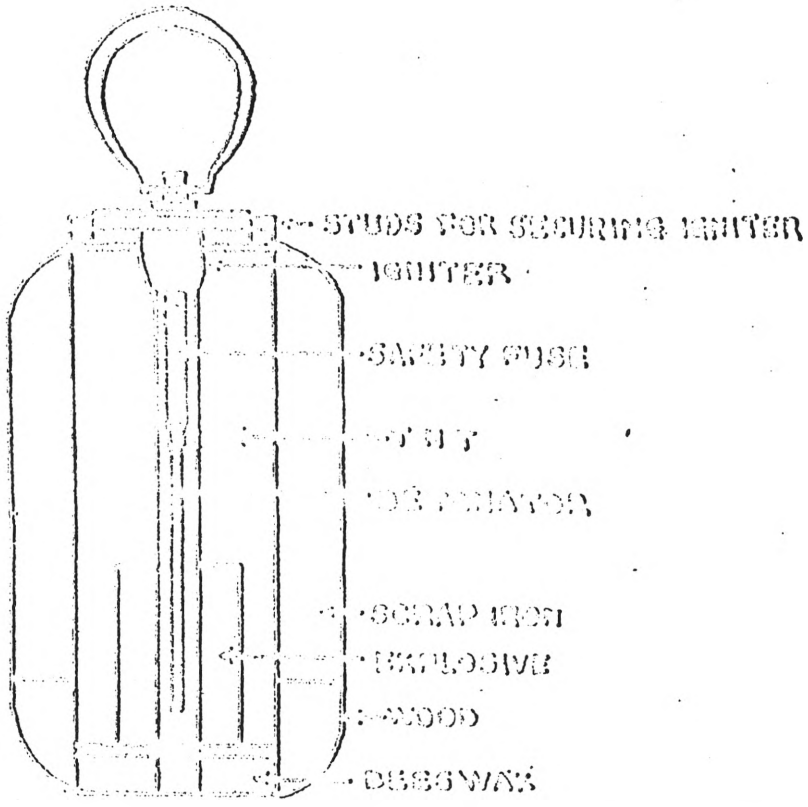
ACTION.

On pulling the friction part of the lighter throw the composition of powder (it has the same result as striking a match), lighting the fuze, which burns about four seconds, exploding the detonator and the charge.

REMARKS.

This grenade is held in reserve and has no shrapnel. It is used for moral effect only.

BRITISH NO. 6. NO. 7. HAND GRENADE.



DIMENSIONS OF CYLINDER 4"×2½"

BRITISH HAND GRENADE NO. 7.

Type, Time Fuze, Friction Lighter. Weight 1 lb. 3 oz.

(1) Outer cylinder of tin painted a lemon yellow with beeswax composition to keep out moisture.

(2) Inner cylinder containing explosive.

(3) Scrap iron forming missiles between inner and outer cylinders.

(4) No. 8 M. K. 7 Detonator with short length of safety fuze.

(5) Friction lighter in brass holder.

(6) Two nail heads to hold friction lighter holder.

(7) The friction lighter is a small brass pin with a head with a string loop at one end and the other with a saw line edge. This is inserted into the holder through a composition of gun powder, ground glass, etc.

(8) A cardboard cap over the upper end of grenade used in transit.

(9) A wooden plug in lighter recess.

To Prepare.

Remove wooden plug, insert lighter, turn to right or left till spring catches nail heads.

To Throw.

Hold the grenade in right hand, place finger in string loop on lighter, give a sharp pull, then throw with an overhand motion.

ACTION.

On pulling the friction part of the lighter throw the composition of powder (it has the same result as in striking a match) lighting

the fuze, which burns about four seconds, exploding the detonator and the charge.

REMARKS.

This grenade is held in reserve.

BRITISH HAND GRENADE NO. 19 (Percussion).

Weight 1½ lbs.

EXPLOSIVE—AMMONAL.

Consists of a serrated cast iron body; screwed into the bottom is a brass plug and ferrule and in this is fastened a wooden handle six inches long with three streamers attached to it. The top of the grenade is opened and fitting down inside the casting is a brass screw plug with a hole in the centre which is the detonator well. Screwed into the top is another threaded brass plug with a hole through the centre to receive a mushroom striking pin. A safety pin and a piece of fine soft copper wire run through the stem of mushroom head and brass plug.

A percussion cap fits in the bottom of the plug 1¼ inches below the stem of the head which acts as a striker.

To Detonate.

Unscrew top plug, insert detonator and replace plug.

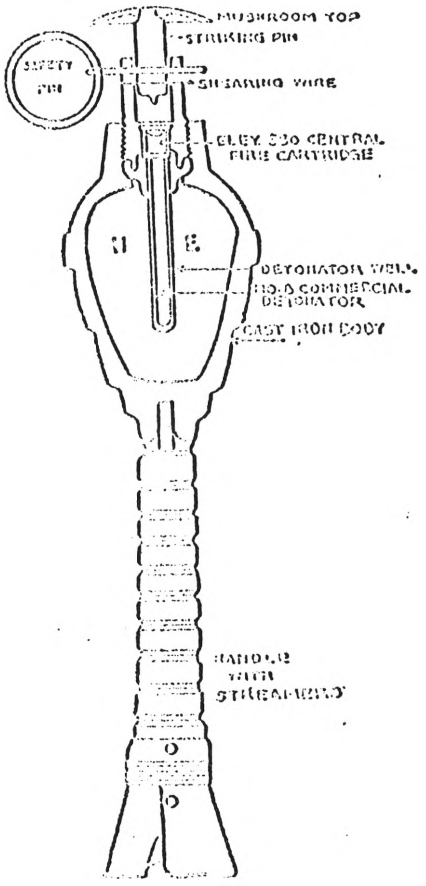
To Fire.

Gather streamers and remove safety pin and as in all grenades throw with an overhand motion.

ACTION.

The weight of the grenade assisted by the streamer brings the grenade down with head against the ground. The force of impact drives in the mushroom head, thereby cutting the copper wire, and

BRITISH HAND GRENADE. NO. 19 (PERCUSSION).



the striking pin will strike the percussion cap which explodes the detonator and then the main charge.

GENERAL PRECAUTIONS.

Don't remove safety pin until ready to throw. Take care not to strike the side of trench when throwing.

BRITISH RIFLE GRENADE NO. 20.

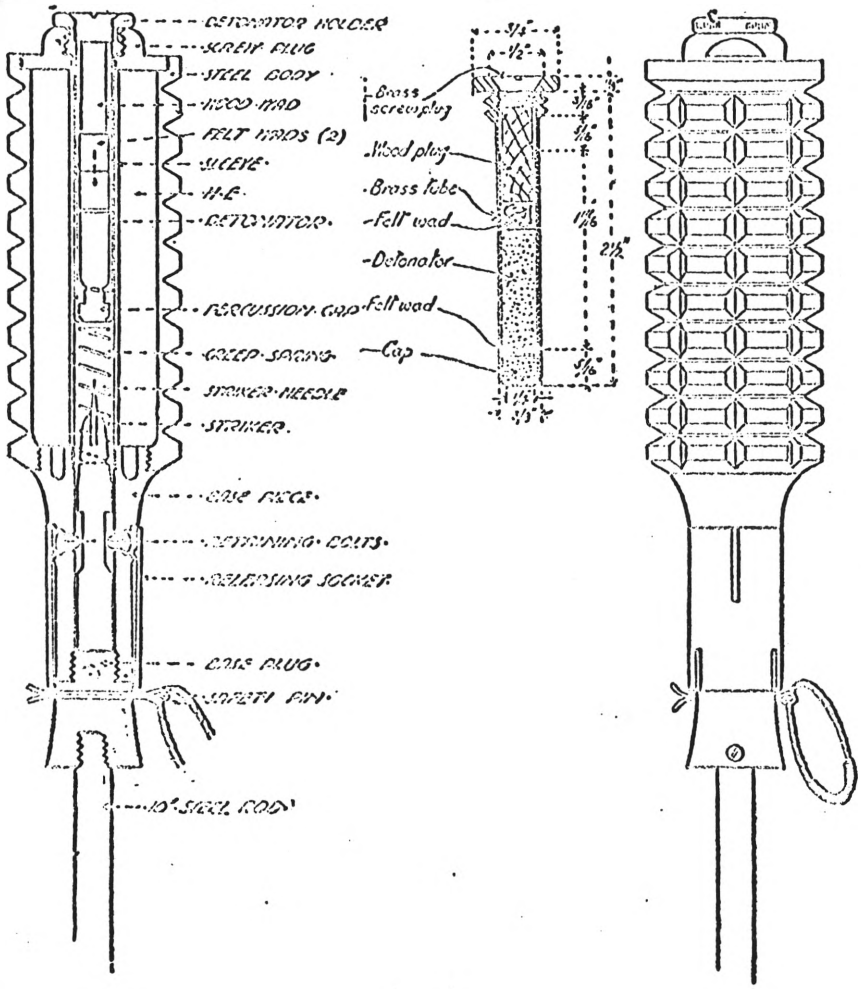
Weight Complete 1 lb. 6 oz. Maximum Range 250 yds.

BODY.

Serrated steel filled with explosive. Down the centre of the explosive is a brass tube, into the forward end of which the detonator is inserted. The body is closed by the base piece. This carries the striker pellet, two retaining bolts, releasing socket and safety pin. To the base piece is fixed a ten inch steel rod.

[*Diagrams on the page following.*]

GRENADE .303, SHORT RIFLE NO. 20.



SECTION.

ELEVATIONS SHOWING TWO TYPES OF BODY.

BRITISH PIPPIN RIFLE GRENADE NO. 22.

Weight 1 lb. 10 oz. Maximum Range 300 yds.

BODY.

The grenade consists of a cast-iron stream line body with a flat head, serrated on the outside. A fifteen inch rod is screwed into the pointed end and fitted with a copper gas check. In the centre of the flat head is a hole; into this after the grenade has been filled with ammonal a paper tube with a solid end is forced down and waxed in. This tube takes the special detonator.

CAP.

Over the head of the grenade is a detachable pressed steel cap, the sides of which have been cut away, leaving four projecting lugs, each with a forward hole in it. These lugs fit over four projections cast on the body. The cap is fitted with a safety pin.

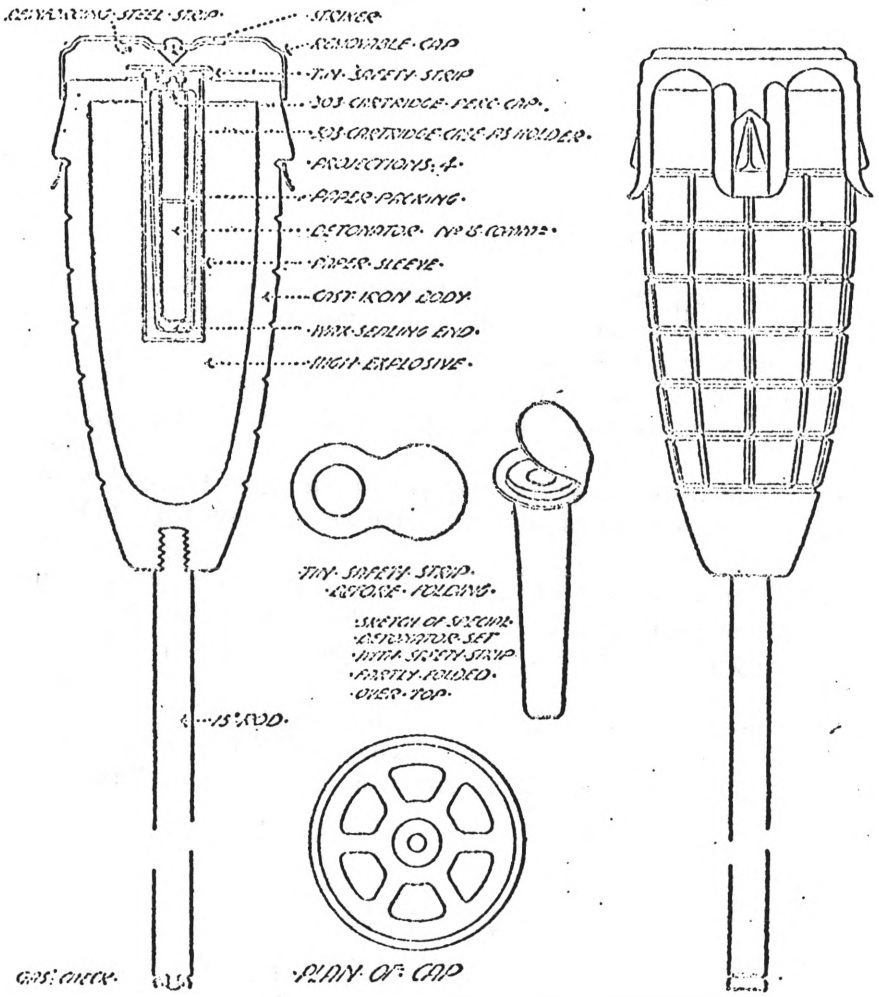
DETONATOR HOLDER.

Consists of an ordinary .303 rifle cartridge case before undergoing the operation of nicking, fitted with a percussion cap only. Inside is an ordinary No. 8 Detonator packed round with waxed paper with the end spun over. A tin safety strip is fitted to the base of the cartridge case which covers the cap; this must be perforated by the striker before it can reach the cap.

ACTION.

The grenade, owing to the rod, falls on its head. On coming in contact with the ground the steel cap is driven up and forces the striker through the safety strip into the cap of the cartridge.

BRITISH RIFLE GRENADE .303 (PIPPIN) NO. 22.



INSTRUCTIONS.

To Prepare for Use.

1. Remove the steel cap by the lever supplied with each box of grenades.

2. Push the detonator holder down into the grenade until the rim of the cartridge case comes in contact with the body.

3. Replace the steel cap.

NOTE: The safety pin must not be removed during the above operations.

To Fire.

1. Lower the rod into the barrel of the rifle.
2. Load the rifle with the special cartridge.
3. Before firing withdraw the safety pin.

SPECIAL PRECAUTIONS.

1. The safety pin must not be removed before the grenade has been inserted in the rifle.

2. The grenade must not be fired with a ball cartridge as this may burst the rifle.

3. The rod should be oiled before using.

4. Owing to the grenade being armed as soon as the safety pin has been removed it is advisable to fire it from behind cover.

BRITISH RIFLE GRENADE NO. 24.

VANELESS IMPROVED.

This grenade is a modified form of No. 20, from which it differs in the following particulars:

(a) The exterior of the body is serrated in horizontal rings only.

(b) The releasing socket is one inch long, instead of 1¾ inches, and the brass base is correspondingly shorter. The lower end of the brass is not bellied, so that the socket drops off about ten yards from the rifle.

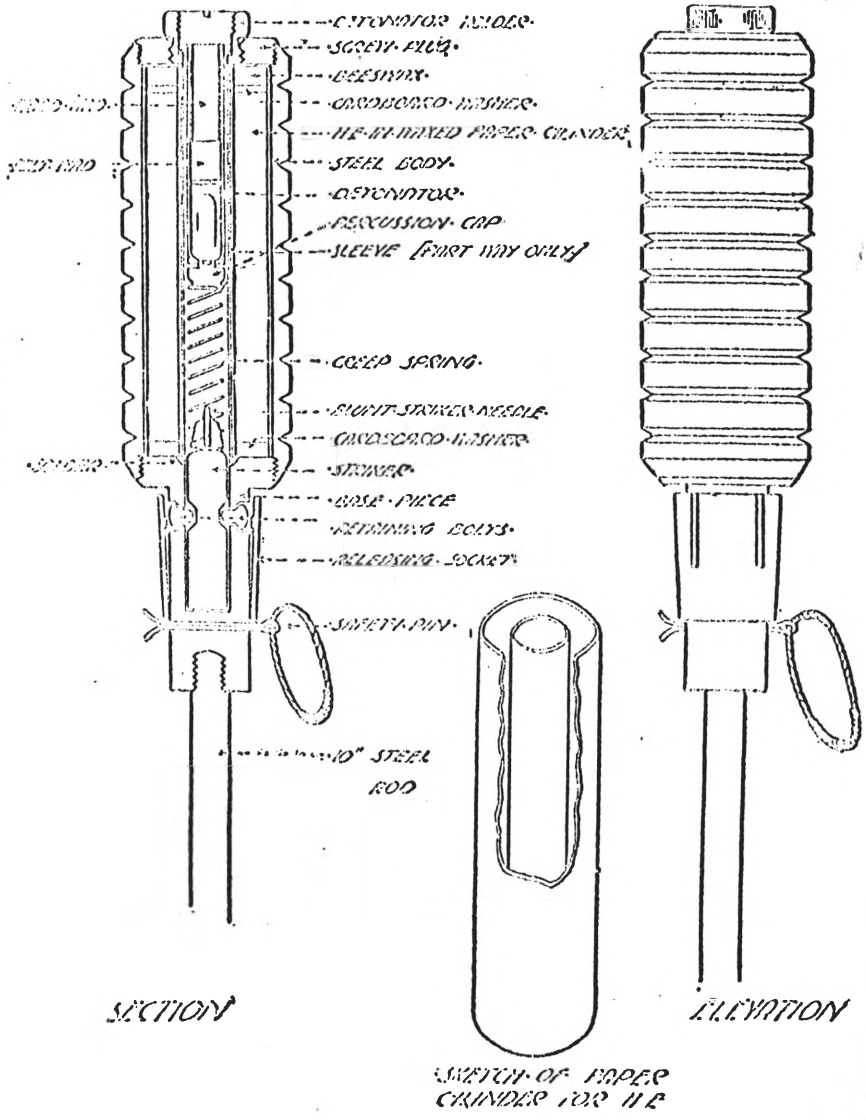
(c) The detonator container is 2 inches long, instead of 2⅝ inches, and its milled top is a sleeve, instead of turned out of the solid.

(d) The striker is ½ inch shorter and the needle point is blunt.

(e) The tube up the centre of the body is shortened so that only the end of the detonator container engages in it, whereas in No. 20 the tube comes right up to the top of the body.

The action and instructions are the same as for No. 20.

BRITISH RIFLE GRENADE .303, NO. 24.



BRITISH EGG GRENADE (Hand or Rifle).

Weight 12 oz.

Consists of:—

Oval shape cast iron body with narrow neck which has a threaded hole in the centre to take chamber. The plunger, which has two points and slot for gas escaper, is held in position by a soft copper wire going through the chamber and plunger, also a safety pin; the lower end of the chamber is threaded to screw into neck of bomb. A brass detonator well goes into the centre of bomb.

The Igniter set consists of a rim fire percussion cap, a four second fuze and a No. 6 Detonator.

INSTRUCTIONS.

To Prepare.

Insert detonator and screw in chamber.

ACTION.

Pull safety pin, strike plunger sharply, this cuts the wire and strikes percussion cap which lights fuze.

Throw immediately.

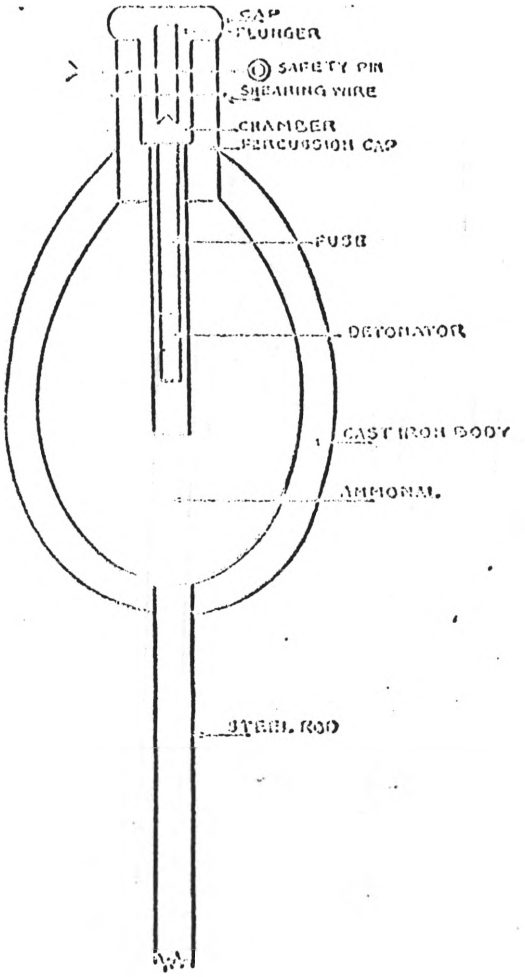
AS A RIFLE GRENADE.

Do not strike plunger.

To Prepare.

Screw in rod in the lower end of the grenade.

BRITISH EGG GRENADE.



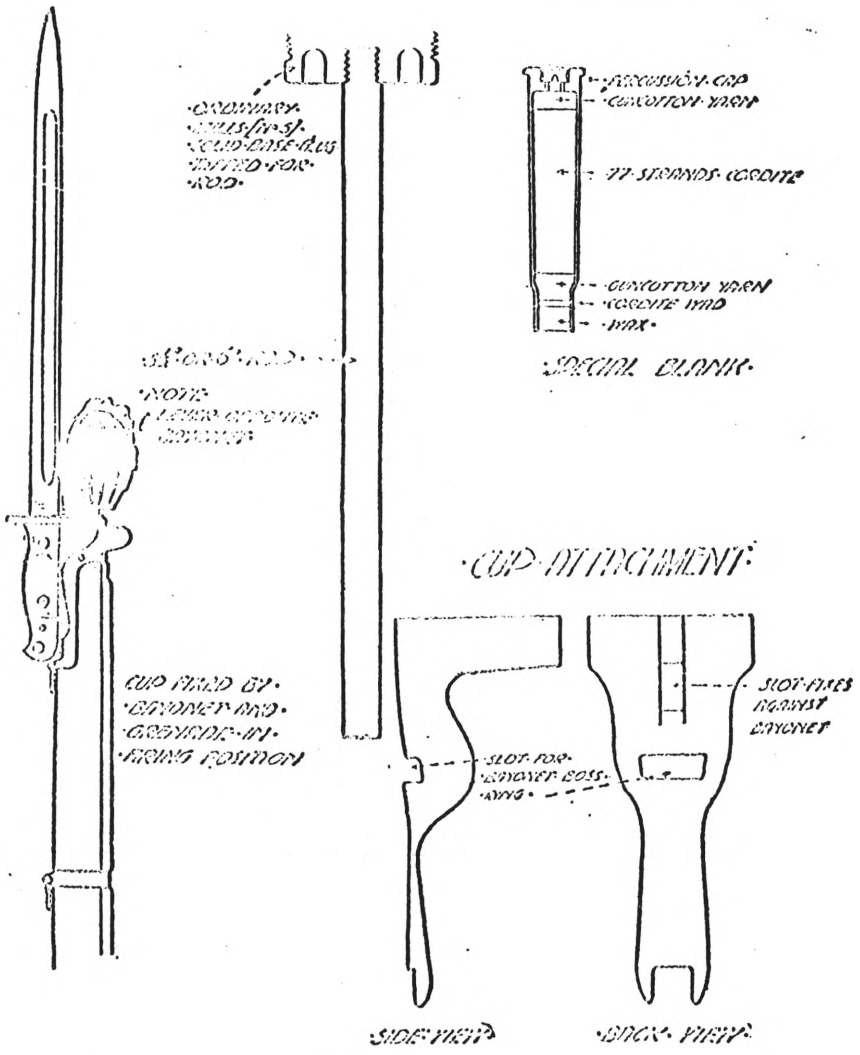
To Fire.

(1) Lower the rod into the barrel of the rifle.

(2) Load rifle with the special cartridge.

(3) Immediately before firing, withdraw the safety pin. The shock of discharge cuts the wire and on impact with the ground forces the striker on cap.

BRITISH RIFLE GRENADE .303, NO. 23.



BRITISH "P" GRENADE.

DESCRIPTION.

The Bomb consists of a tin cylinder three mm. in diameter and five inches long. In one end is soldered a detonator tube and a short length of copper wire for binding purposes. The cylinder is filled with red phosphorus.

The Bomb when exploded produces a thick white smoke, the Phosphorus thrown out causes burns and may cause fire. The detonator supplied is the ordinary No. 8 fitted with nine second fuze and Brock lighter.

INSTRUCTIONS.

To Prepare for Use.

Insert the detonator in the detonator tube and bind in place with copper wire.

To Fire.

Tear off the tape from Brock Lighter and rub on brassard supplied.

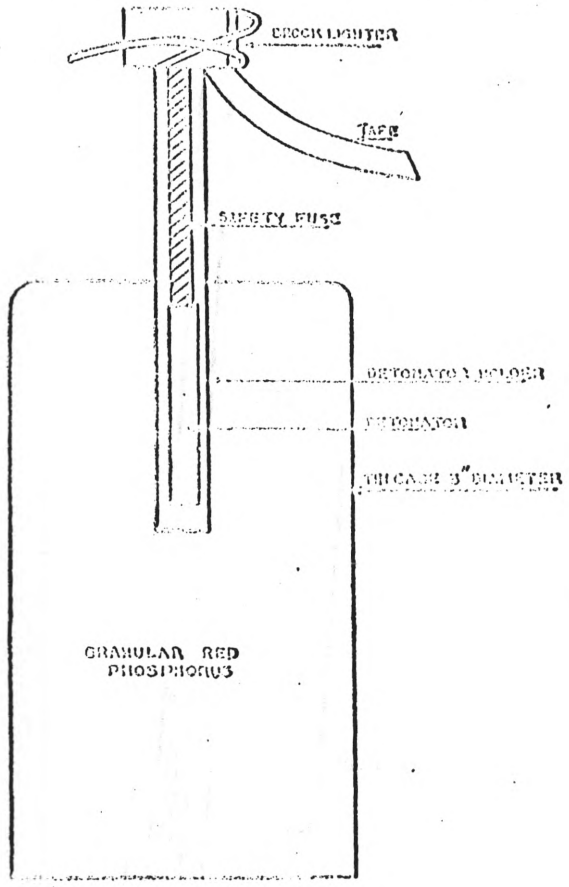
PRECAUTIONS.

Whenever stored, grenades should be examined from time to time to see that the tins have not become corroded or rusted through into holes, as there is a danger of fire when the phosphorus is exposed to the air.

PACKING.

The grenades are packed twelve in a box, which also contains a tin of twelve detonators, fuzes and fuze lighter and two brassards.

BRITISH "P" GRENADE.



BRITISH W. P. BOMB.

WHITE PHOSPHORUS BOMB.

DESCRIPTION.

BODY.

Consists of a tin cylinder 4 by 2½ inches. The rear end is closed by a thick piece of metal, into which a 15 inch rod is screwed. In the forward end is a screwed threaded hole, which takes the chamber. In the centre of bomb is a copper detonator well. The chamber contains a plunger held in place by a copper wire and a safety pin over top is a tin cap. The Igniter consists of a centre fire cap and a cap chamber which is an ordinary 4.10 revolver cartridge, a six seconds fuze and a No. 6 detonator.

INSTRUCTIONS.

To Prepare.

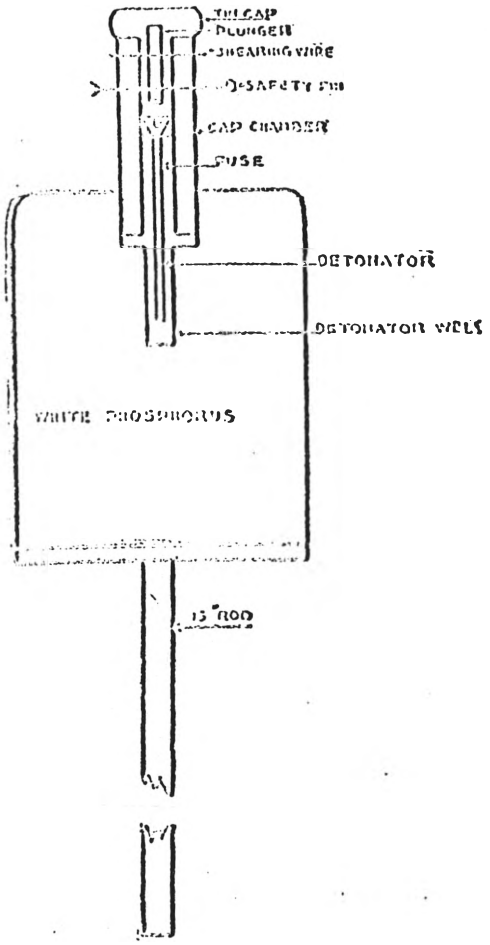
Unscrew chamber, insert igniter, then screw chamber home.

To Fire.

(1) Lower the rod into the barrel of the rifle.
(2) Load rifle with the special cartridge.
(3) Immediately before firing withdraw the safety pin.

The shock of discharge cuts the wire and on impact with the ground forces the striker on cap.

BRITISH W. P. BOMB.



THE BALL HAND GRENADE (Time).

The Ball Hand Grenade (Time).

Consists of:

Plain cast iron sphere three inches in diameter, filled with ammonal and closed by a screwed steel plug, which has attached to it a copper tube to take detonator into centre of grenade. It is lighted by fuze and detonator or Brock lighter.

Weight—1 lb. 11½ oz.

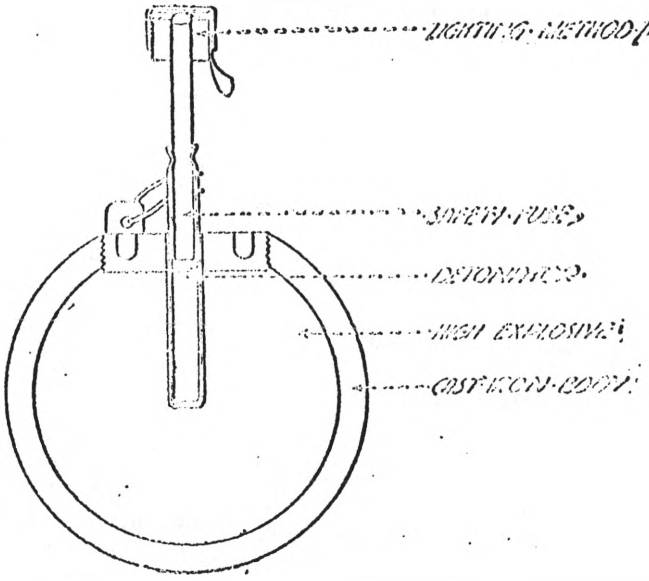
To Prepare.

Place in detonator and Brock lighter and secure with wire. Hold bomb in right hand, remove tape with left. Strike lighter on brassard and throw with bowling action.

This bomb has a four second fuze.

THE BALL HAND GRENADE (BRITISH).

ILLUSTRATING THE PRINCIPLES OF TIME FUZE GRENADES.



BRITISH MILLS RIFLE GRENADE.

Weight Complete 1 lb. 3½ oz.

MAXIMUM RANGE.

5½ inch Rod 80 yds.
10 " " 160 " } With the Rifle at an elevation of 45 degrees.

BODY.

Same as Mills Hand Grenade with rod screwed into the base plug of the grenade. [*See pp. 22 seq.*]

CARTRIDGE.

A special blank cartridge is supplied to fire the grenade.

RING ATTACHMENT.

In order to keep the lever of the grenade in place after the safety pin has been removed previous to the firing, a ring attachment is fixed to the rifle by means of the bayonet; it is so constructed that it can be used either with the long or short bayonet. This attachment cannot be used with the long rifle.

ACTION.

When the grenade is shot out of the rifle the lever is no longer held down and the normal Mills Grenade action follows. Variation of range is obtained by altering the elevation of the rifle.

INSTRUCTIONS.

To Prepare for Use.

1. Unscrew the base plug and insert the igniter.
2. Screw in the base plug with key provided, taking care that it is screwed home.
3. When required as a rifle grenade, screw in the rod.

To Fire.

1. Fix the ring attachment to the bayonet.
2. Fix the bayonet.
3. Lower the rod into the rifle until the grenade is within the ring attachment and the lever is held by the ring.
4. Load the rifle with the special cartridge.
5. Immediately before firing, withdraw the safety pin.

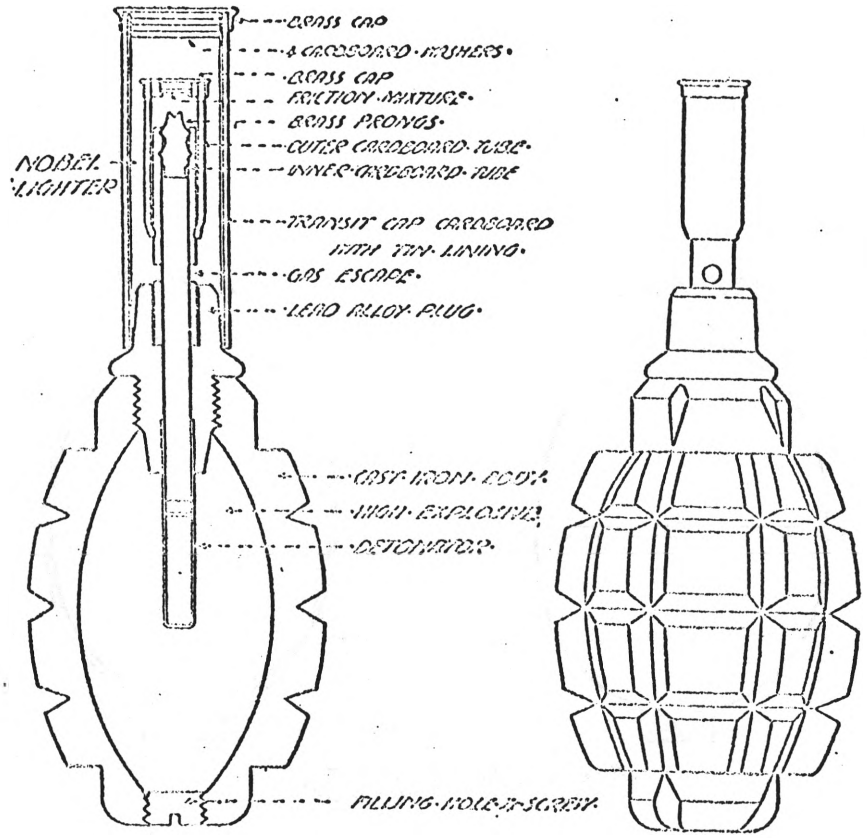
SPECIAL PRECAUTIONS.

1. When inserting the igniter see that the fuze is not cracked or damaged.
2. The lever must be held securely by the ring against the body of the grenade.
3. The safety pin must not be withdrawn before the grenade is inserted in the ring.
4. The grenade must not be fired with ball cartridge, as this may burst the rifle.
5. The rod should be slightly oiled before placing it in the barrel.
6. The rod must be firmly screwed in.

INSPECTION.

1. Only grenades with solid base plugs should be used for rifle grenades, as otherwise the rod is liable to break the plug and cause a premature explosion.

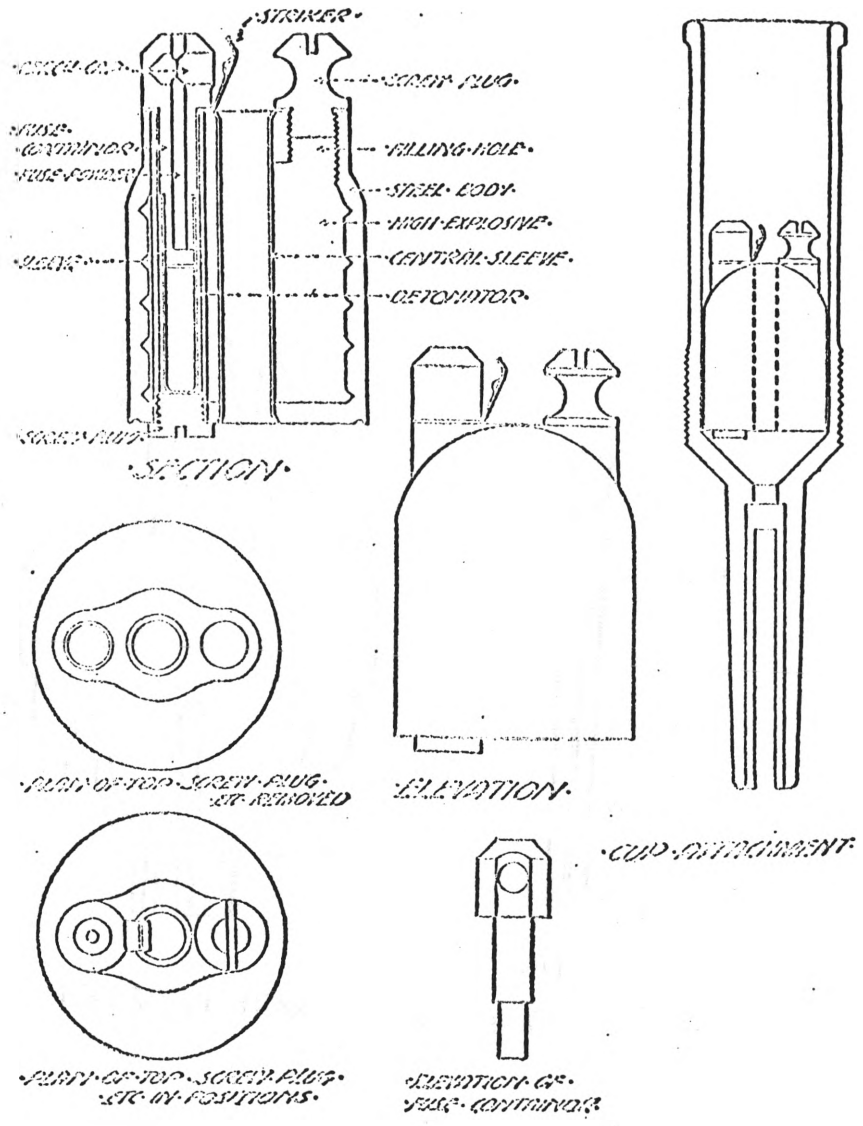
FRENCH GRENADE F 1 (HEAVY OVAL).



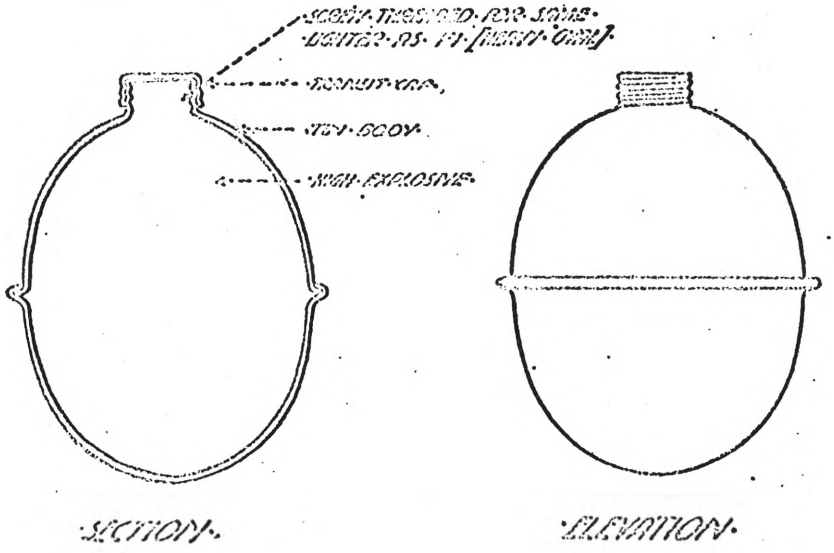
SECTION

ELEVATION
WITHOUT TRANSIT CAP

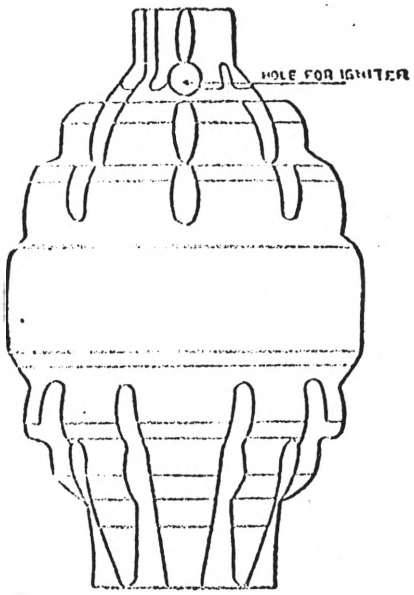
FRENCH V. B. RIFLE GRENADE.



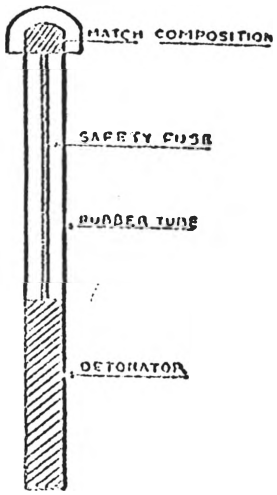
FRENCH BLUE EGG GRENADE.



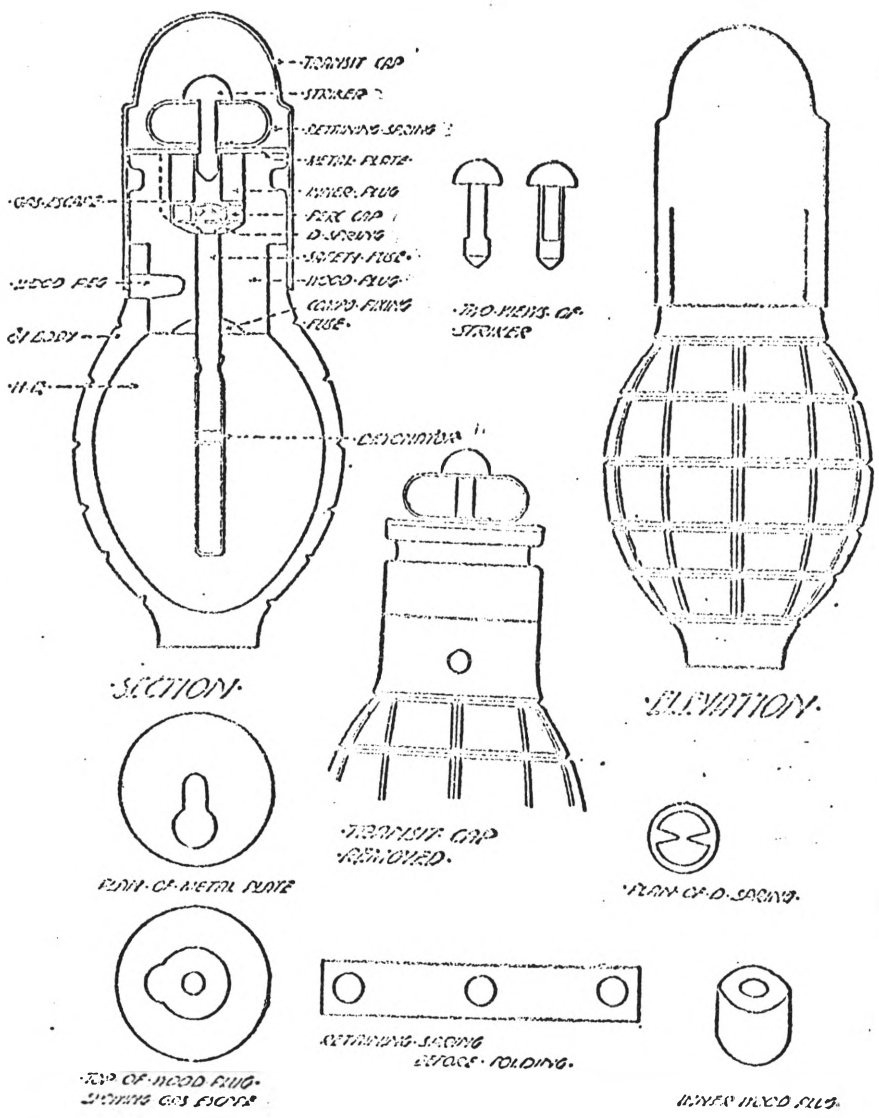
FRENCH BEZOZZI HAND GRENADE.



IGNITER



FRENCH CITRON HAND GRENADE.



DESCRIPTION OF GERMAN GRENADES AND INSTRUCTIONS FOR THEIR USE.

(1) German hand grenades which have been found are of two types; those which have the appearance of service articles and those which are obviously improvised. With the latter, great care is invariably taken to protect the charge from damp, and to render it flashproof by waxing, etc.

Grenades are ignited either by time or percussion. With the former, the time of burning is about six seconds, and the fuze is ignited by one of the following methods:

(a) Spring striker and cap
(b) Friction tube
(c) Match—Head lighter

} Attached to fuze and detonator.

(2) The following precautions should be taken with any grenades that may be found or captured:

1. The grenades should be examined at once by a grenadier, in order to find out whether they are live, how they are fired, etc.

2. The means of firing will probably be immediately apparent to a trained grenadier, but during examination grenades should be handled with care.

3. No man who does not understand grenades should touch them, but should report the presence of a store of grenades to the nearest grenadier, N. C. O. or officer.

4. If being used against the enemy, a grenade should be thrown as soon as it is "lit," even if there is no apparent evidence of the fuze burning.

5. Arrangements for removing, storing and destroying grenades

found in a captured position should be made as soon as possible by grenadier officers.

6. Grenadier officers will also be responsible when samples of grenades are taken back to headquarters for examination, that the grenades are not in a dangerous condition and have the detonators removed.

GERMAN RIFLE GRENADE 1913 (Percussion).

Weight 2 lbs. Complete. Charge 3 oz. Explosive. Maximum Range 350 yds.

BODY.

Steel, 4.3 inches long and .16 inch thick, is serrated so that on detonation it splits up into fragments. It is painted gray. The base is closed by a brass base cup which has screwed into it a steel tail rod eighteen inches long, with copper gas check to take the grooves of the rifling. The rod has a thin coating of copper to protect it from rust and also to protect the barrel. A tin disc is fastened to the head of the grenade pellet with needle and creep spring.

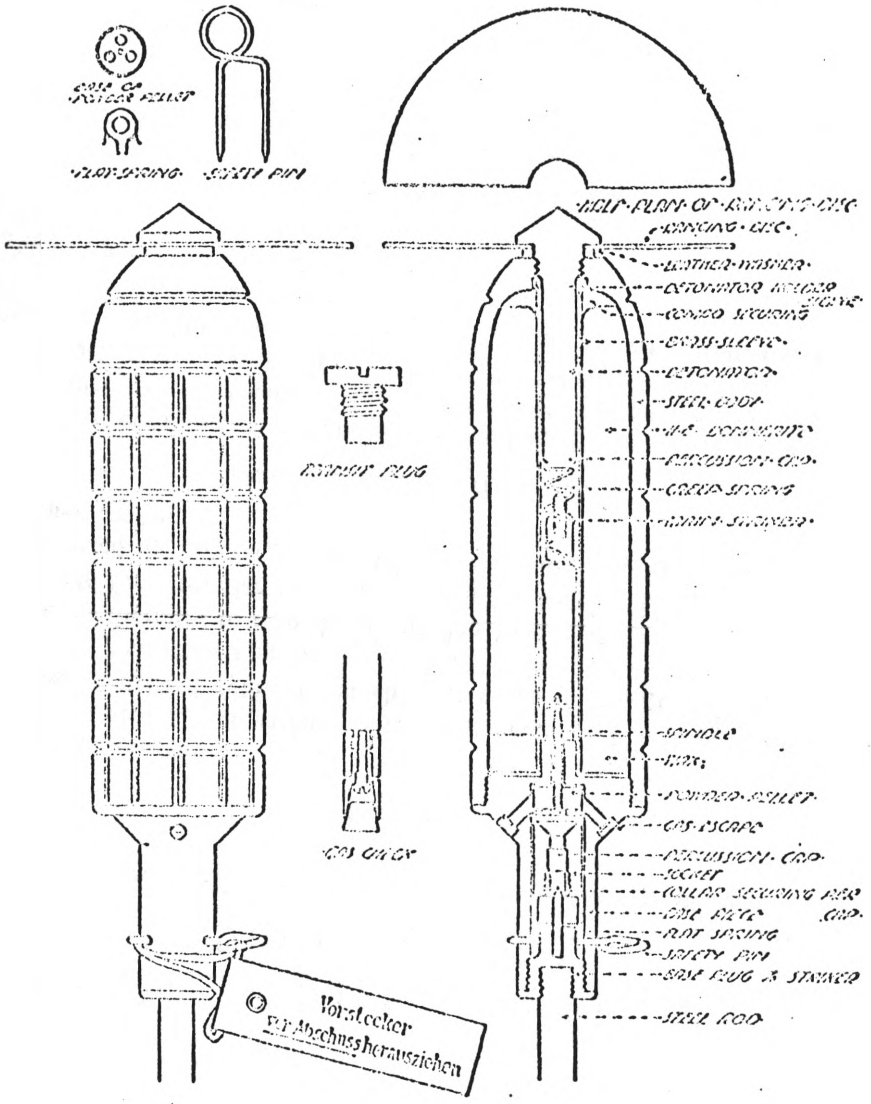
METHOD OF IGNITION.

An Igniter plug, carrying cap and detonator, screws into the head of the grenade. A brass tube passing through the centre of the grenade contains a striker pellet, with needle and creep spring

SAFETY ARRANGEMENTS.

1. A powder safety device is contained in base cup. Screwed into the striker pellet is a spindle, which passes through into the base cup, and has at its lower end a small platform with three flash holes. On this rests a pellet of compressed powder, the object of which is to keep the striker from moving forward until a short time after the grenade has left the rifle. This powder is ignited by means of a small brass pellet with a cap, which sets back on the shock of dis-

1913 GERMAN RIFLE GRENADE.



charge, and flattening a small spring, is penetrated by a needle on the screw plug closing the base cup. A vent hole in the base cup allows the escape of the gases of combustion. This is normally sealed with wax.

2. When the powder is burnt away, the striker is only prevented from moving forward by a creep spring, the resistance of which is overcome on strike.

INSTRUCTIONS.

To Use.

1. Unscrew zinc plug from the head.
2. Screw in the igniter plug (with tin disc for range under 200 yds.).
3. Lower the grenade carefully into the barrel.
4. Insert special cartridge in the barrel.
5. Fix the rifle at the required elevation.
6. Fire the rifle.

To Render Useless.

Unscrew the igniter plug in the head of the grenade, holding the grenade with rod downward.

PRECAUTIONS.

1. A German rifle only can be used.
2. Care must be taken that the grenade is not dropped, especially on the tail rod, as then it is liable to become "live," and will therefore detonate on firing. It should be carried head uppermost by the grenade, not by the rod.
3. The special rifle grenade cartridge must be used and in no case a ball cartridge.
4. Tail rods which jam or rub when being placed in the barrel must not be used, and no force is to be employed.
5. Damp tail rods should be dried before use. All rods should be firmly screwed in.

GERMAN RIFLE GRENADE 1914 (Percussion).

"Gewehrgranate." Weight 2 lbs., Maximum Range 380 yds.

BODY.

Cast iron painted field gray and serrated to give fragments of sufficient size on detonation. The charge (2¾ oz.) is made up in a thin cardboard cylinder, which is retained in the grenade by a shoulder piece screwing on to the body. The nose of the grenade is screw-threaded to take the percussion fuze, and the base to take a nipple for a tin disc and tail rod with gas check. Until the fuze is inserted the nose is protected from dust and damp by a plug and leather washer.

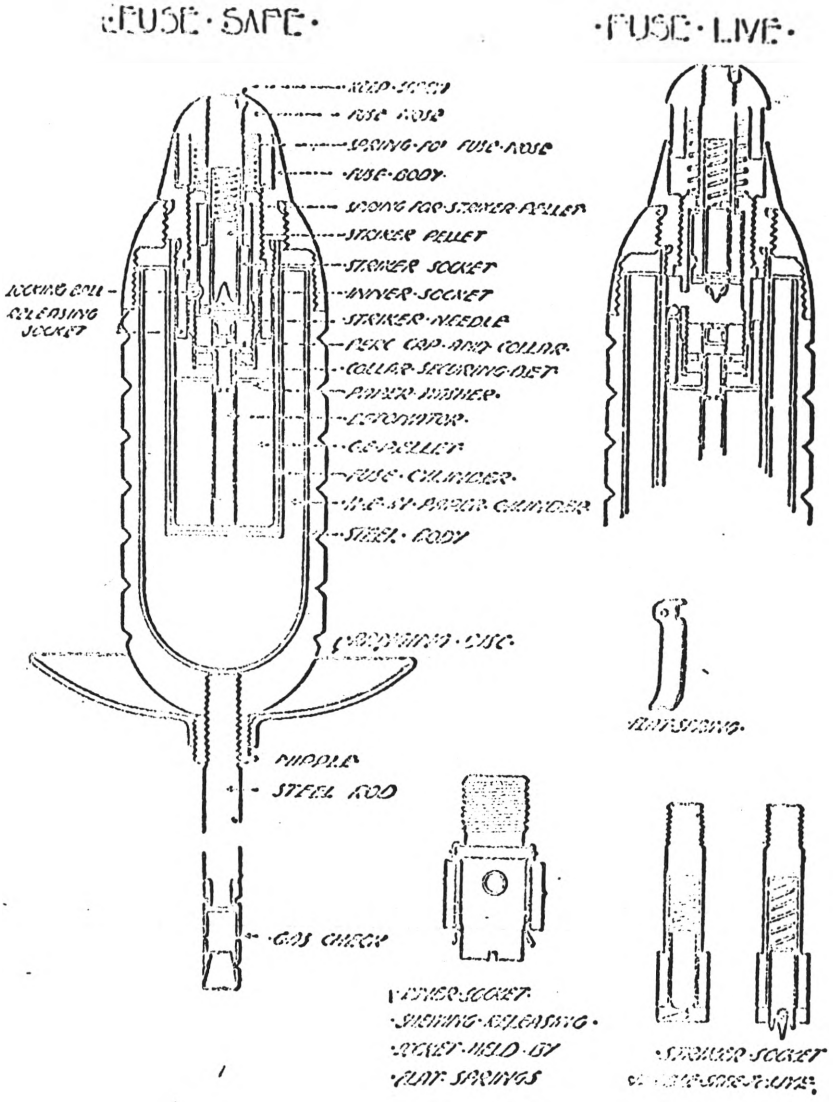
METHOD OF IGNITION.

The percussion fuze contains an exploding charge with detonator and cap. The last named is set off by a striker pellet screwed into the socket of the fuze. The needle of the pellet is hinged and lies flat on top of the cap when in the safety position, but is pulled and maintained erect by the spring in the striker pellet as soon as the pellet moved forward after firing.

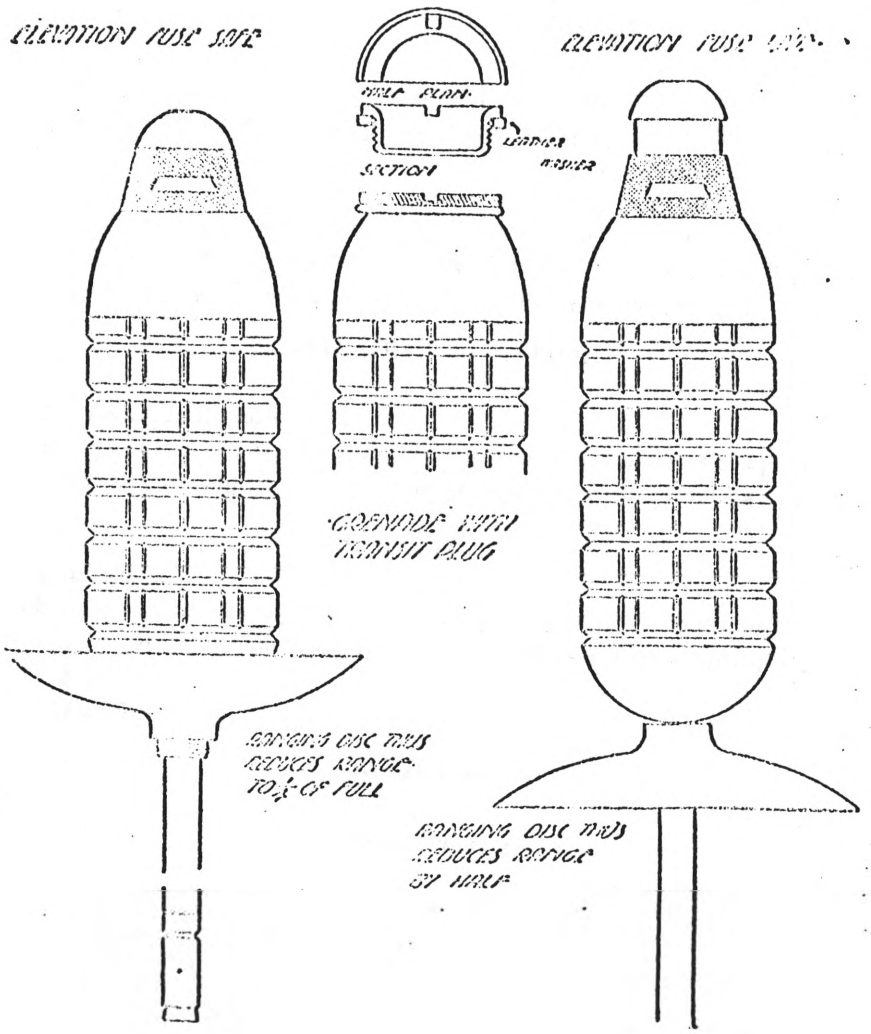
SAFETY ARRANGEMENTS.

1. The striker pellet is retained in position by a locking ball, which rests in a recess in the pellet. This ball is prevented from falling out by a locking ring which is held up by a flat spring with curved ends. On the rifle being fixed the locking ring overcomes the spring and sets back and the locking ball is driven out of its recess by

1914 GERMAN RIFLE GRENADE.



1914 GERMAN RIFLE GRENADE.



the striker pellet, which, acting under the pressure of its spring, moves forward out of the body together with the nose of the fuze. At the same time the needle pellet spring pulls up the needle into the firing position.

2. The striker pellet is prevented by its spring from being driven back on to the cap until impact.

INSTRUCTIONS.

To Use.

1. Unscrew plug by means of the key, pull the two pronged safety pins from the fuze and screw the fuze in slowly and carefully by means of the key.
2. Lower the grenade carefully into the barrel.
3. Insert special cartridge in the breech.
4. Fix the rifle at the required elevation.
5. Fire the rifle.

To render useless. Unscrew fuze from the grenade.

PRECAUTIONS.

1. A German rifle 98 or 88.05 only can be used.
2. Care must be taken that the grenade is not dropped, especially on the tail rod, as there it is liable to become live and will therefore detonate on firing.
3. The special rifle grenade cartridge must be used.
4. Tail rods which jam or rub when being placed in the barrel, must not be used and no force is to be employed.
5. Damp tail rods should be dried before use. All rods should be firmly screwed on.

WARNING.

Grenades with live fuze should not be fired or touched; they are easily recognizable as the nose of the fuze will be found sticking out. Grenades in this condition should be destroyed as soon as possible.

GERMAN DISC HAND GRENADE (Percussion).

(Diskushandgranate 1915.)

WEIGHT.

There are two patterns, one weighing 15 oz. and the other 13¼ oz.

The former is made of sheet metal and is for throwing in the open; the latter is of cast iron and should only be thrown from behind cover.

BODY.

Two iron shells convex on the outside and with the edges either turned over or reverted. It contains two circular bags of explosive, each containing two ounces.

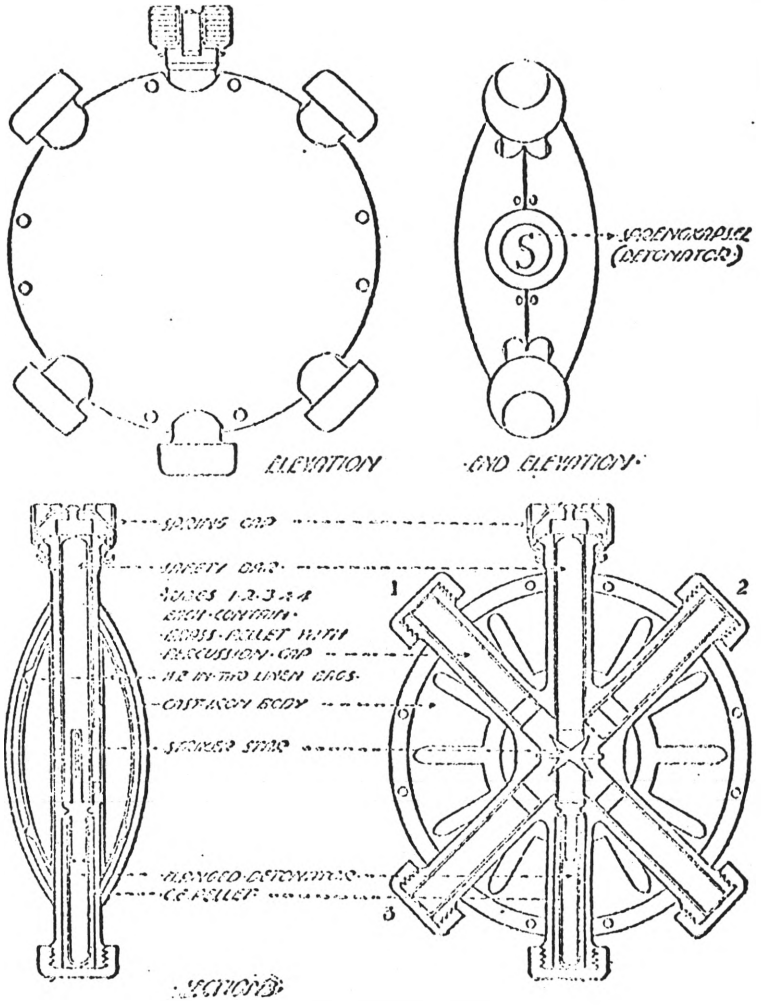
METHOD OF IGNITION.

Consists of six metal tubes in the shape of a star meeting at the centre of the grenade plug. Four of these tubes carry striker pellets with caps at the inner ends and opposite to each cap is one of the points of a four pointed star. The outer end of each of these tubes is closed by a screwed plug. One of the remaining two tubes carries the detonator of which the inner end is open. This tube is closed by a screwed plug with milled head with letter "S" on it.

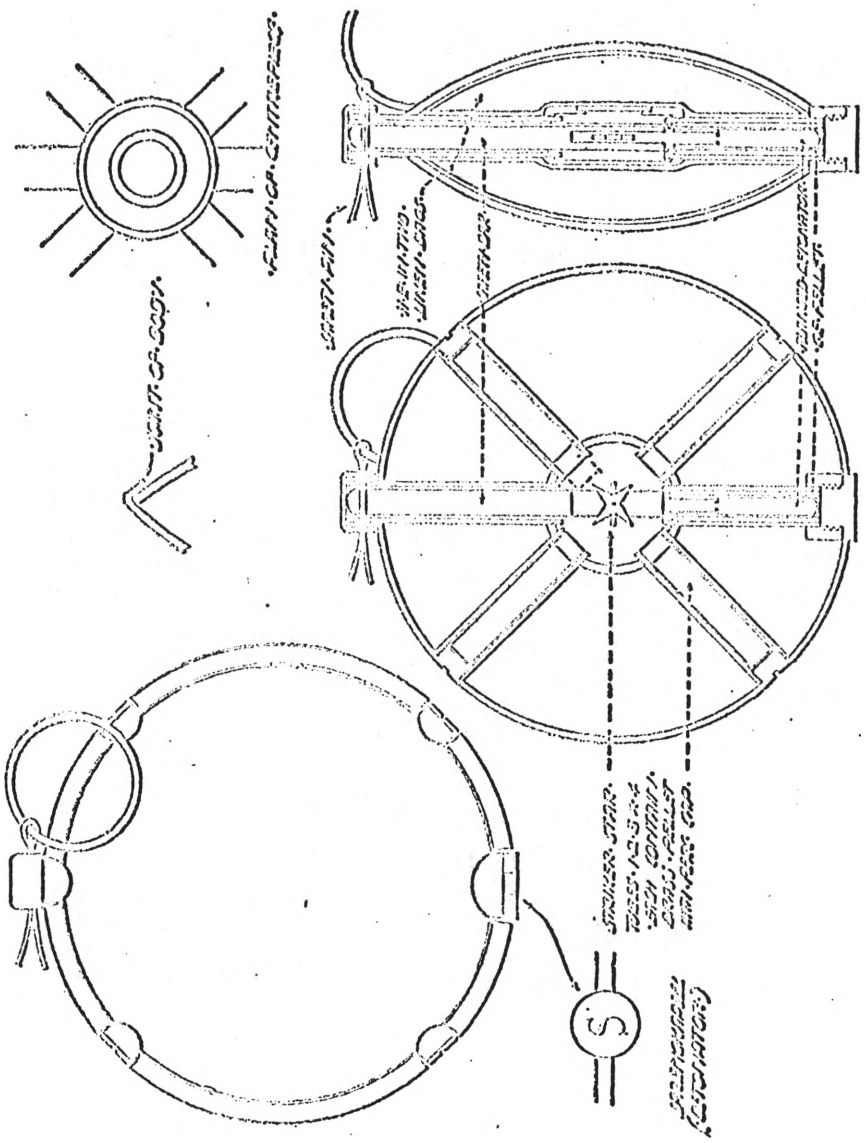
SAFETY ARRANGEMENTS.

The sixth tube contains a safety pellet divided into two prongs, one of which passes on each side of the star and protects the points.

GERMAN DISC GRENADE.



GERMAN DISC GRENADE
(MORAL EFFECT TYPE).



This pellet is retained in its position by a cap which closes the outer end of this tube. The cap is screwed to the tube either by clips or by a safety pin with ring. Action During Flight. Owing to the grenade turning over the safety pellet flies out and the grenade becomes sensitive. When the edge of the grenade strikes the target the [illegible] striker pellet drives the cap forward on to the point of the star. The flash passes into the detonator and explodes the charge.

INSTRUCTIONS.

To Prepare for Use.

1. Hold the grenade in the right hand, safety pin upwards.
2. Pull out safety pin with left hand.
3. Pull off the cap and hold safety pellet in position with right fore finger.
4. Throw the grenade as high as possible, taking care that the edge is vertical.

To Render Useless.

1. Unscrew the plug of the tube, marked "S" opposite to the safety pin.
2. Remove detonator.

GERMAN CYLINDRICAL GRENADE WITH FRICTION TUBE (Regulation Type).

Weight 1 lb. 13 oz. (Cylindrical Stick.)

DESCRIPTION.

The body consists of a tin cylinder 4 inches by 2⅞ inches diameter which contains a cartridge of explosive. This is closed at the top with a lid held in place by four clips; at the bottom there is a screw threaded hole to take the handle. The bottom of the cartridge is fitted with a paper tube for the detonator; on the side of the body there is a hook, by means of which the grenade can be attached to the belt.

The inscription on the body "Vor Gebrauch Spring Kapsel Einsetzen" means "Before use insert detonator."

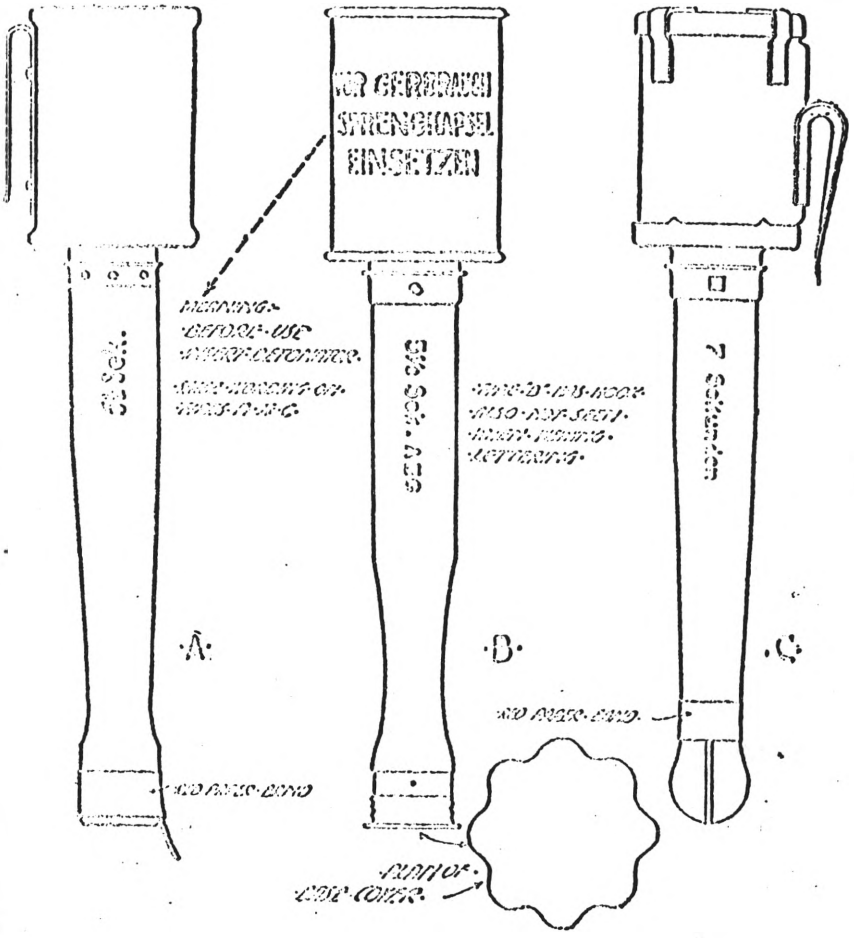
HANDLE.

Wooden, 9⅞ inches long, has a screw threaded metal top which fits into the body. It is bored out axially to take the igniter and wire pull.

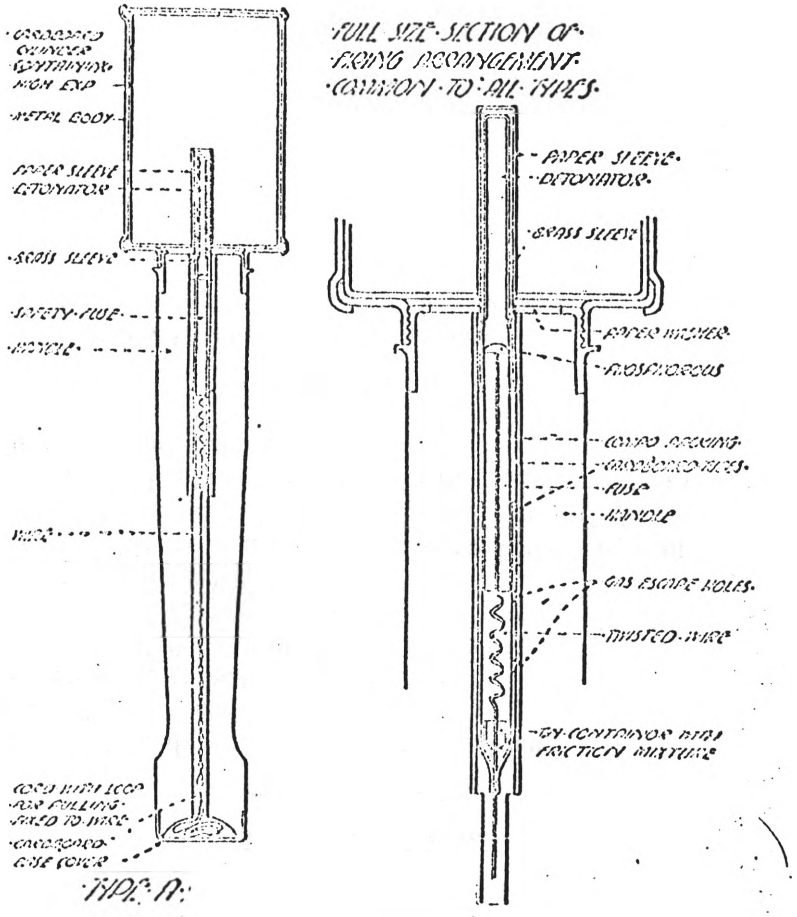
METHOD OF IGNITION.

Consists of a friction lighter and safety fuze contained in a cardboard tube. The igniter is actuated by pulling a string loop at the end of the handle. This loop is attached to the wire pull of the friction tube, and is fixed to the handle by means of a paper band. The mouth of the detonator fits into a brass tube at the top of igniter,

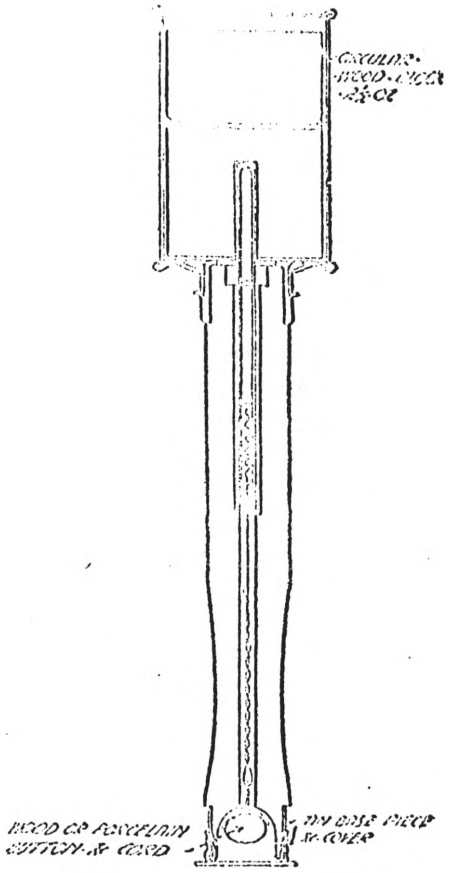
GERMAN CYLINDRICAL GRENADE (STICK FRICTION). TYPES OF THE GRENADE.



GERMAN CYLINDRICAL GRENADE (STICK FRICTION). DETAILS OF TYPE A.



GERMAN CYLINDRICAL GRENADE (STICK FRICTION). DETAILS OF TYPE B.



TYPE B.

and is fired by the flash from the dab of phosphorus at the end of the safety fuze. Time of burning — 5½ or 7 seconds as marked on the handle.

SAFETY ARRANGEMENTS.

1. The grenade and detonator are kept separate during carriage.
2. The drawing loop is attached to the handle by a paper band, which must only be removed before firing.

INSTRUCTIONS.

To Prepare for Use.

1. Unscrew the handle and see if the detonator is in position; if it is, refix the handle.
2. Hold the grenade in the right hand.
3. Tear off the paper band with left hand.
4. Pull loop with left hand.
5. Throw immediately.

If the detonator is not in position, search must be made for a supply of the proper detonators. Fit the mouth of the detonator into the projecting brass tube, screw in the handle and then proceed as in 2, 3, 4, and 5 above.

To Render Useless.

1. Unscrew handle, remove detonator.
2. Pull drawing loop and throw handle away.

GERMAN EGG HAND GRENADE (EIERHANDGRANATE).

Weight 11 oz. (but patterns vary slightly). Can be Thrown 50 Yds.

DESCRIPTION.

BODY.

Cast iron egg shaped about 60 mm. (2.3 inches) long by 45 mm. (1.77) inches diameter, with a screwed hole at one end to insert the igniter. It is filled with a special powder which does not require a detonator.

METHOD OF IGNITION.

The igniter is a lead alloy tube which screws into the body and contains a fuze; on one end is fitted a metal cap, containing the friction lighter, which is operated by pulling a wire loop.

TWO IGNITERS ARE SUPPLIED.

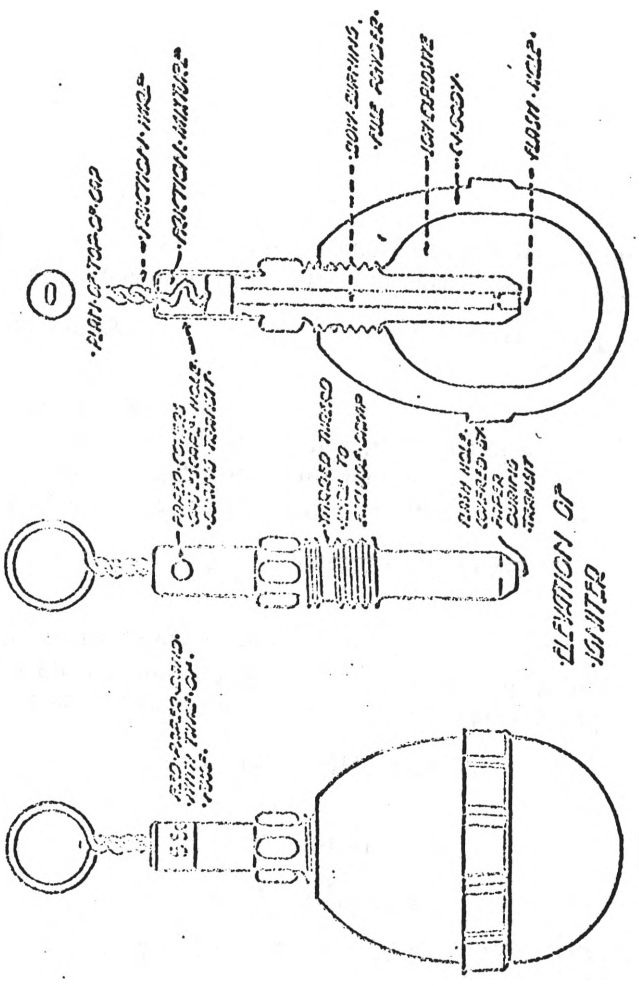
No. 1 with eight seconds fuze for grenades thrown by mechanical means.

No. 2 with five seconds fuze for grenades thrown by hand.

SAFETY ARRANGEMENTS.

The igniter is carried separate from the grenade; a small lead plug is screwed into the body and must be removed before the igniter can be inserted.

GERMAN EGG HAND GRENADE.



INSTRUCTIONS.

To Prepare for Use.

1. Unscrew and remove plug.
2. Screw in igniter.

It is important when screwing in the igniter to keep the grenade upright, so that no powder can get into the screw threads.

To Throw.

Pull the wire loop and throw in the usual way.

To Render Useless.

Unscrew the igniter.

GERMAN HAIRBRUSH GRENADE

Weight 2½ lbs.

DESCRIPTION.

The body consists of a tin box 2¾ inches by 2¾ inches by 6 inches filled with explosive. This box is nailed on to a wooden handle. Length complete is 15 inches.

METHOD OF IGNITING.

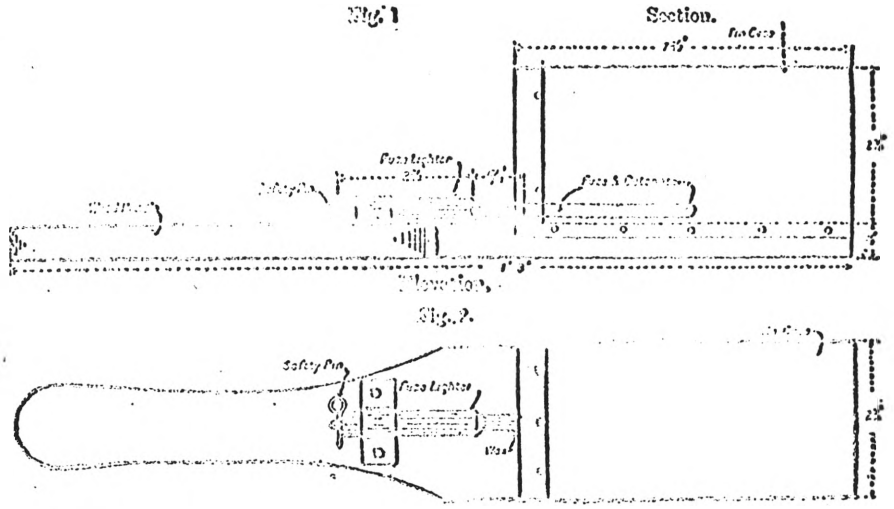
Spring igniter, fuze and detonator, similar to that used in the cylindrical grenade, with spring igniter.

The igniter is kept in position by means of a zinc band screwed on to the handle.

SAFETY ARRANGEMENTS AND INSTRUCTIONS.

As for cylindrical grenade with spring igniter, except that the safest way to destroy this grenade is to fire it in a pit or disused trench.

GERMAN HAIRBRUSH GRENADE.



GERMAN SPHERICAL HAND GRENADE.

Weight 1 lb. 10 oz.

BODY.

Spherical about 3 inches in diameter, made of cast iron about ⅓ inch thick, and is filled with black powder or other explosive which does not require a detonator. The body is coated with varnish inside and out.

METHOD OF IGNITION.

Combination of friction tube, lighter and fuze. The friction tube is fired by pulling out the wire in the direction of the axis of the tube. Time of burning seven seconds. A similar lighter which burns for five seconds is also provided.

SAFETY ARRANGEMENTS.

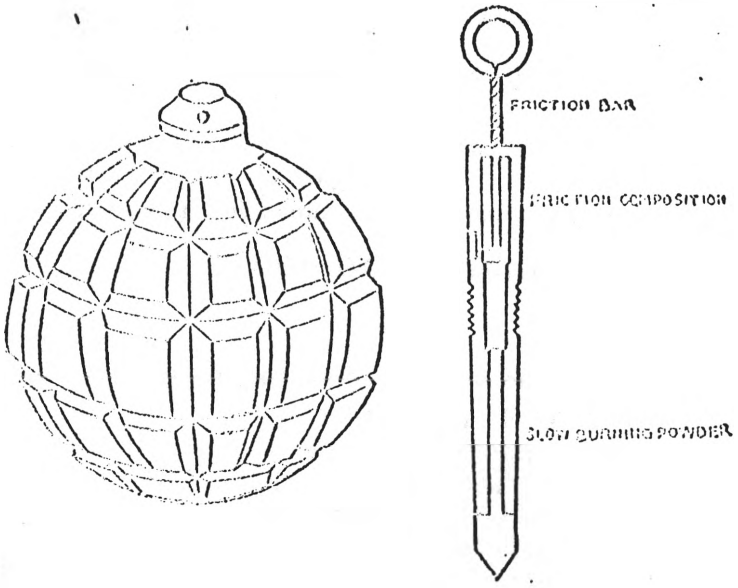
1. Grenade and fuze kept separate during carriage.
2. The vent for the fuze in the grenade is closed by means of a zinc plug.
3. The holes in the lighter are covered with water proof paper.
4. The wire is bent in order to prevent a direct pull.

INSTRUCTIONS.

To Prepare for Use.

1. Take the lighter, remove the oiled paper and straighten the wire, taking care not to pull it.
2. Insert the lighter.

GERMAN SPHERICAL HAND GRENADE.



To Throw.

1. Hold the grenade in the right hand with the igniter towards the wrist.
2. A nail or a loop of string should be passed through the wire pull.
3. Throw the grenade.

To Render Useless.

1. Bend the wire down, taking care not to pull it.
2. Unscrew the lighter.
3. Shake out the contents of the grenade.

GERMAN PARACHUTE GRENADE (Percussion).

DESCRIPTION.

The body, which is painted black, consists of a tin cylinder of explosive with hemispherical head of larger diameter containing shrapnel bullets. A buffer cylinder passes through the body and projects, so as to produce the explosion slightly above ground. The base of the body is closed by a wooden plug at the handle. A parachute safety arrangement is attached to the head of the handle in order to prevent fragments flying to the rear on explosion, and also to cause the grenade to fall on its head.

METHOD OF IGNITION.

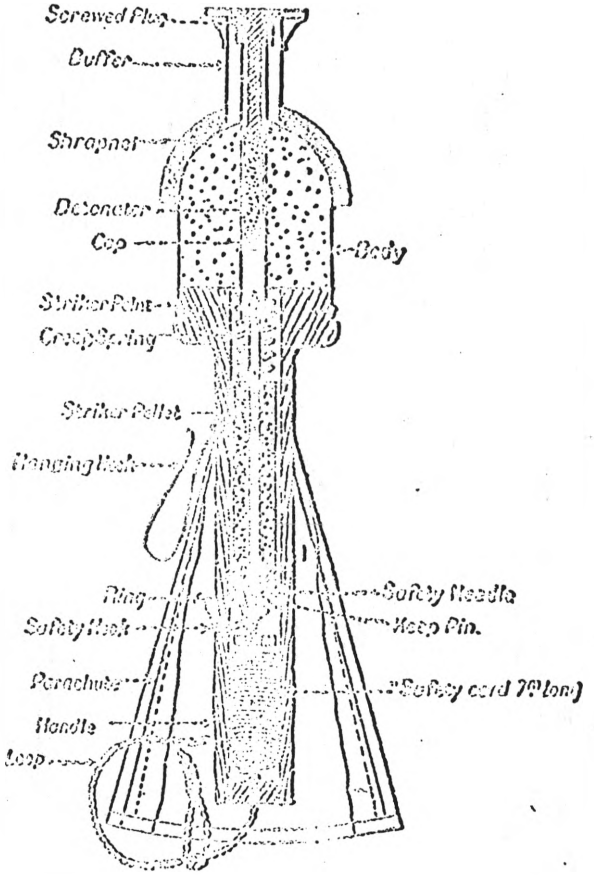
Consists of (1) The detonator in the buffer cylinder supported by the screwed plug at the end.

2. The percussion pellet with point and spiral spring.

SAFETY ARRANGEMENTS.

Consist of the following: A cord seven metres long which normally is coiled up inside the handle, is attached to a long needle passing down the percussion pellet. A safety hook retains a ring attached to the end of the percussion pellet and the needle passes through a hole in this hook. After the first seven metres of the flight, the jerk on the cord pulls out the needle and the safety hook is thus free to fall out sideways and so allow the percussion pellet to move forward on concussion.

GERMAN PARACHUTE GRENADE.



2. Keep pin and creep spring. The former prevents the percussion pellet from falling back.

INSTRUCTIONS.

(a) To Prepare for Use.

1. Unscrew the plug in the head.
2. Place in the detonator, fulminate downwards.
3. Screw in the plug.
4. Tear off the band holding the parachute.
5. Holding the loop of the cord firmly with the first and second fingers of right hand, unwinding as short a length as possible of the cord.
6. Hold the grenade in the right hand.
7. Retaining the loop of the cord, throw the grenade so that it will reach a height of twelve or thirteen feet.

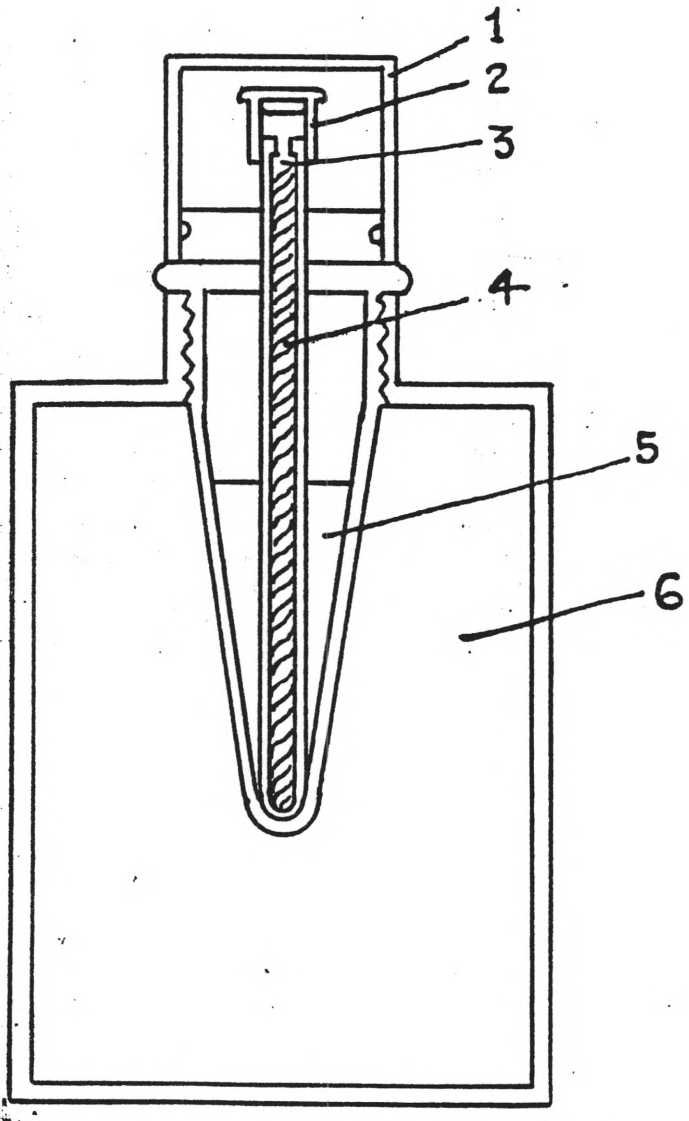
(b) To Render Useless.

Remove the detonator.

NOTE: The grenades may be found live, in which case 1, 2 and 3 have already been done.

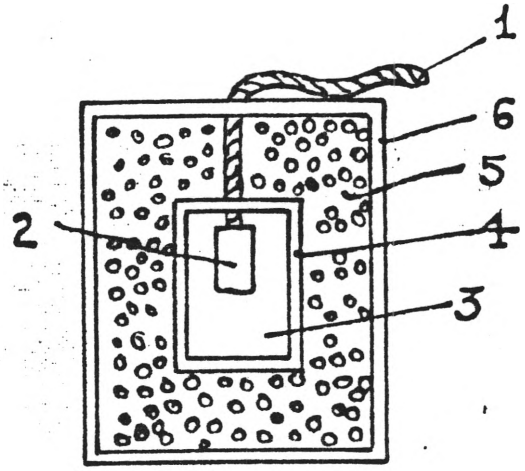
This grenade can be used in attack or defence, but it is particularly designed for the former, as the fragments are projected in a forward direction only, and so are not dangerous to the throwers. The safety arrangements prevent the grenade from becoming dangerous until it has flown about seven metres.

Incendiary Grenade, 1916, (Materiel)

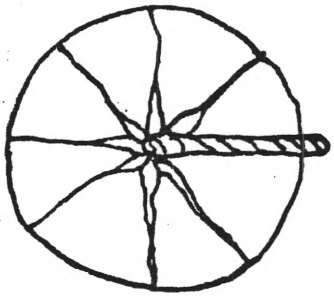


1. Cover
2 Cap
3 Striker
4 Slow Match
5 Black Powder
6 Calorite

Tin Can Grenade.

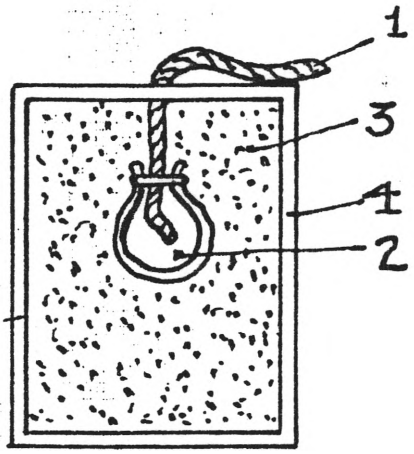


1 Fuse
2 Detonator
3 T.N.T.
4 Iron plate
5 Pebbles
6 Tin Can



Practice Grenade

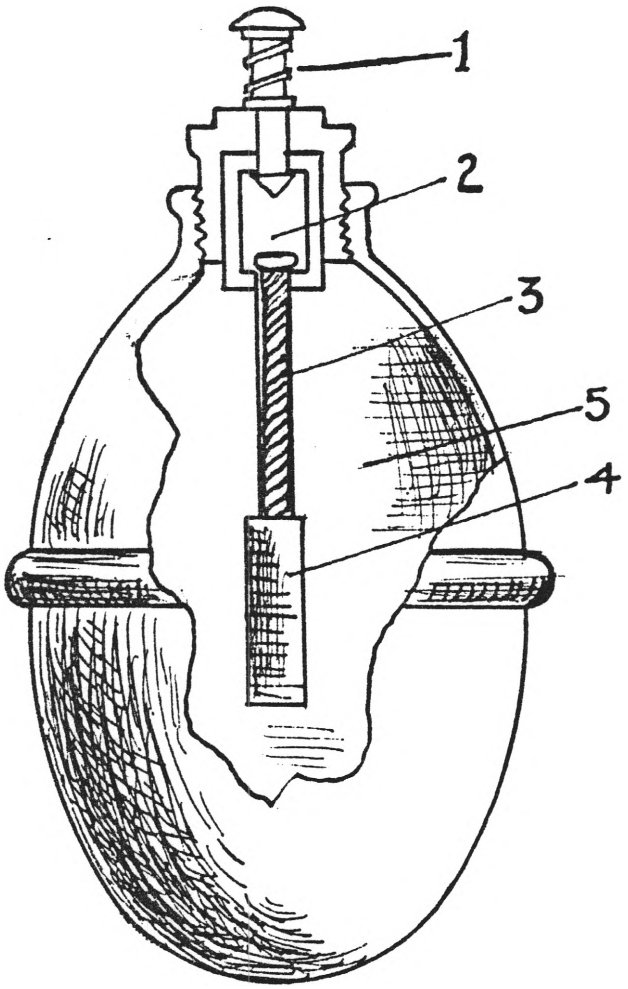
Practice Grenade



1 Fuse
2 Black Powder
3 Sand
4 Tin Can

12

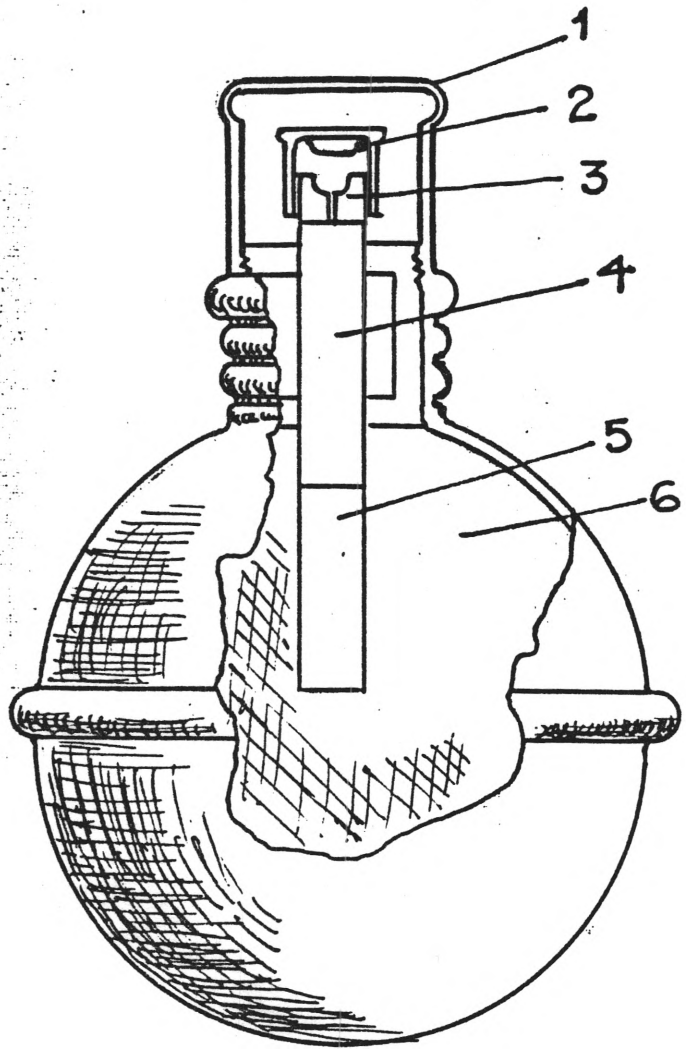
Suffocating & Lachrymatory Grenade. 1916



1 Striker
2 Primer
3 Fuse
4 Detonator
5 Charge

Wt. – 14 oz. 47 grains
Radius – 15-20 yds.
Body – leaded iron
Charge – is non-explosive, producing gases – 7 oz. spec'l liquid

A.B. Grenade, 1916, (Incendiary)

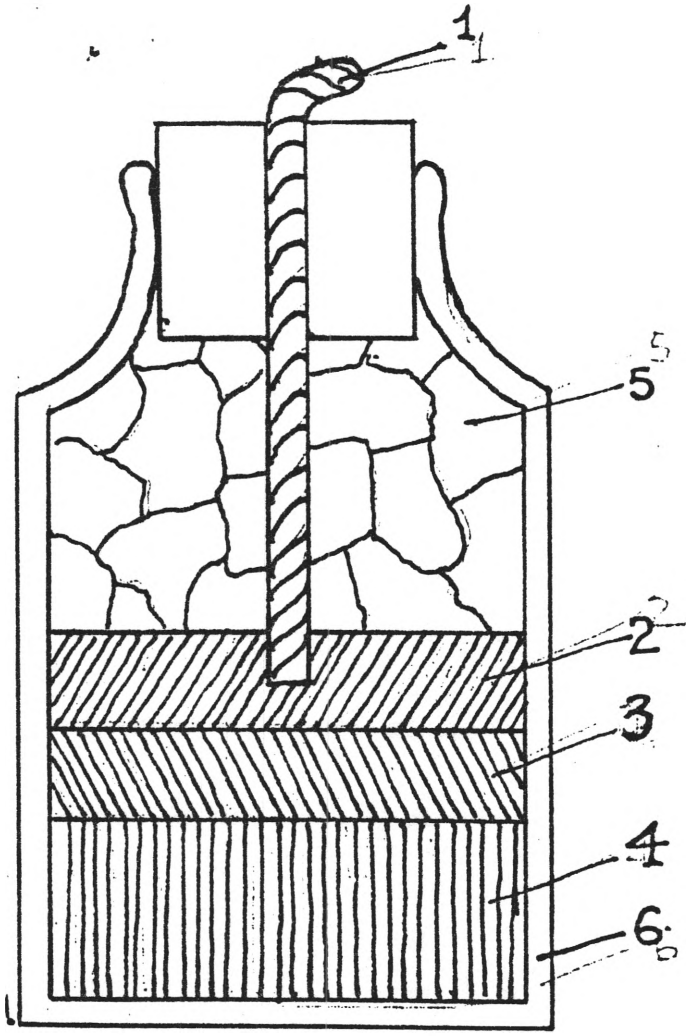


1 Cover
2 Primer
3 Striker
4 Slow Match
5 Detonator
6 White Phosphorus

Wt. 1 lb. 9 oz. Radius 20 yds

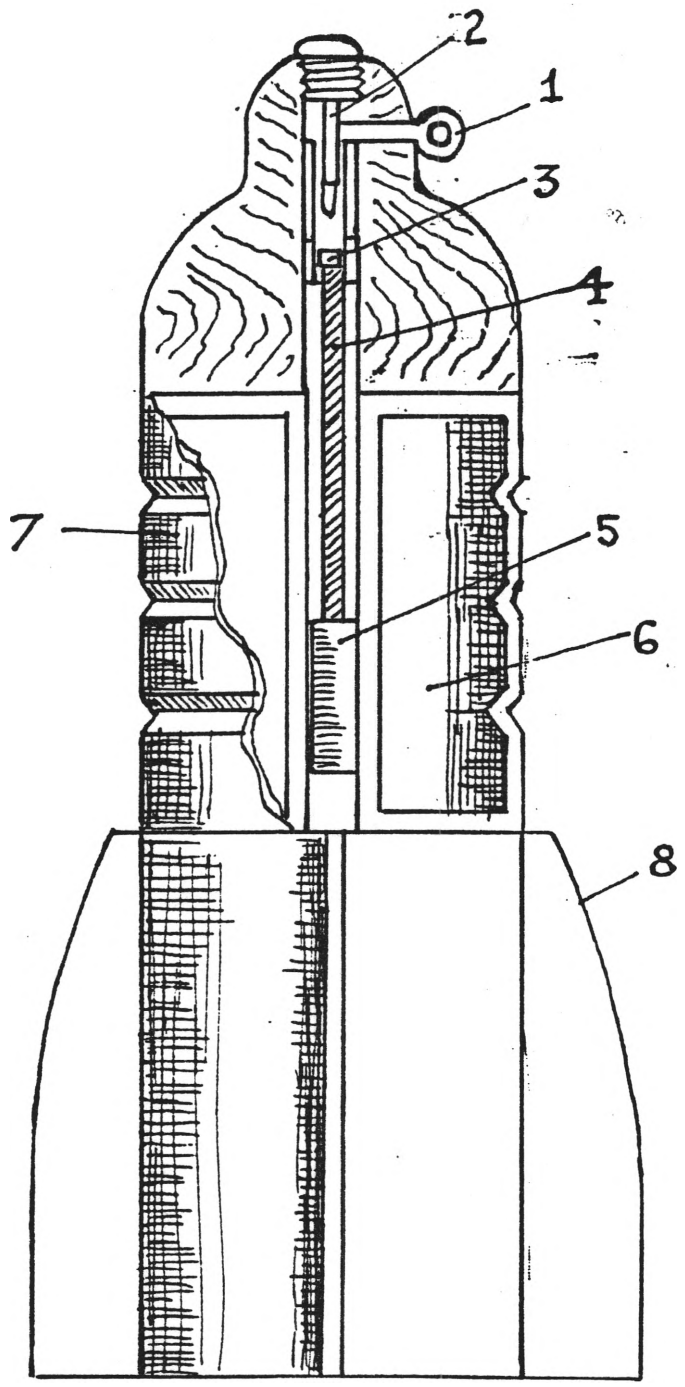
Note: This grenade is for people.

18 Improvised Smoke Bomb.



1 Fuse
2 Black Powder
3 Red Phosphorous
4 Sand
5 Paper
6 Bottle

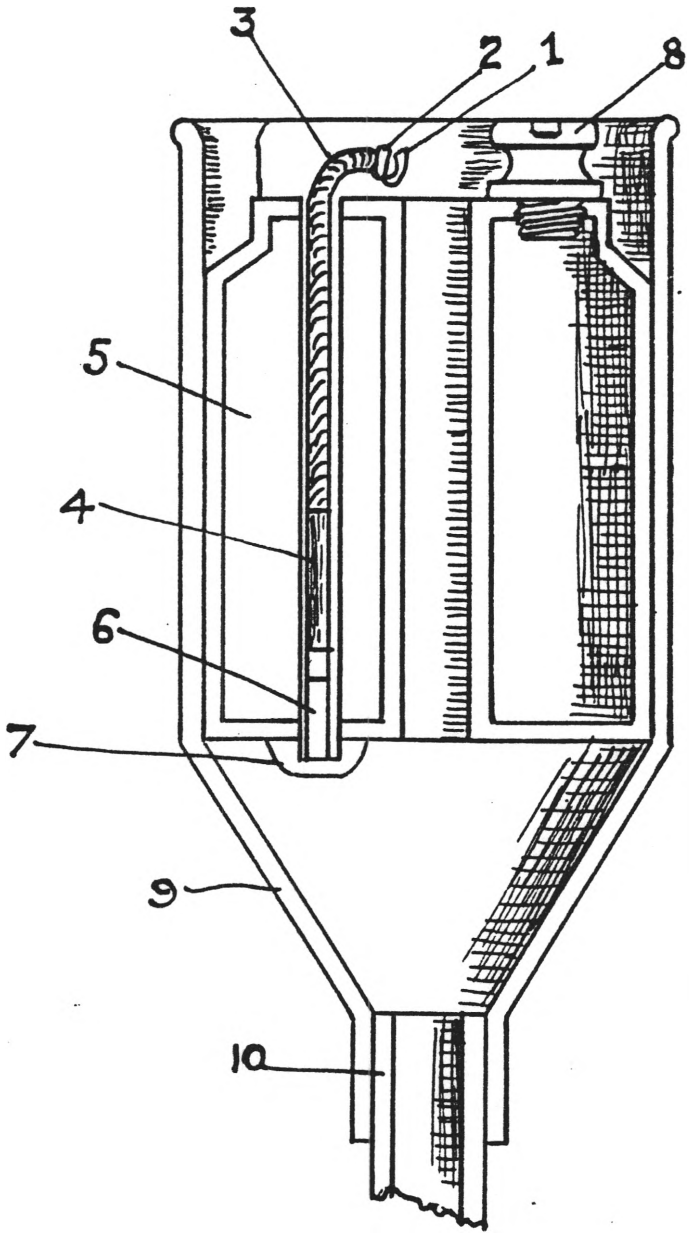
D.R. Rifle Grenade.



1 Safety Plug
2 Firing Pin
3 Cap
4 Fuse
5 Detonator
6 Cheddite
7 Body
8 Fins

'13

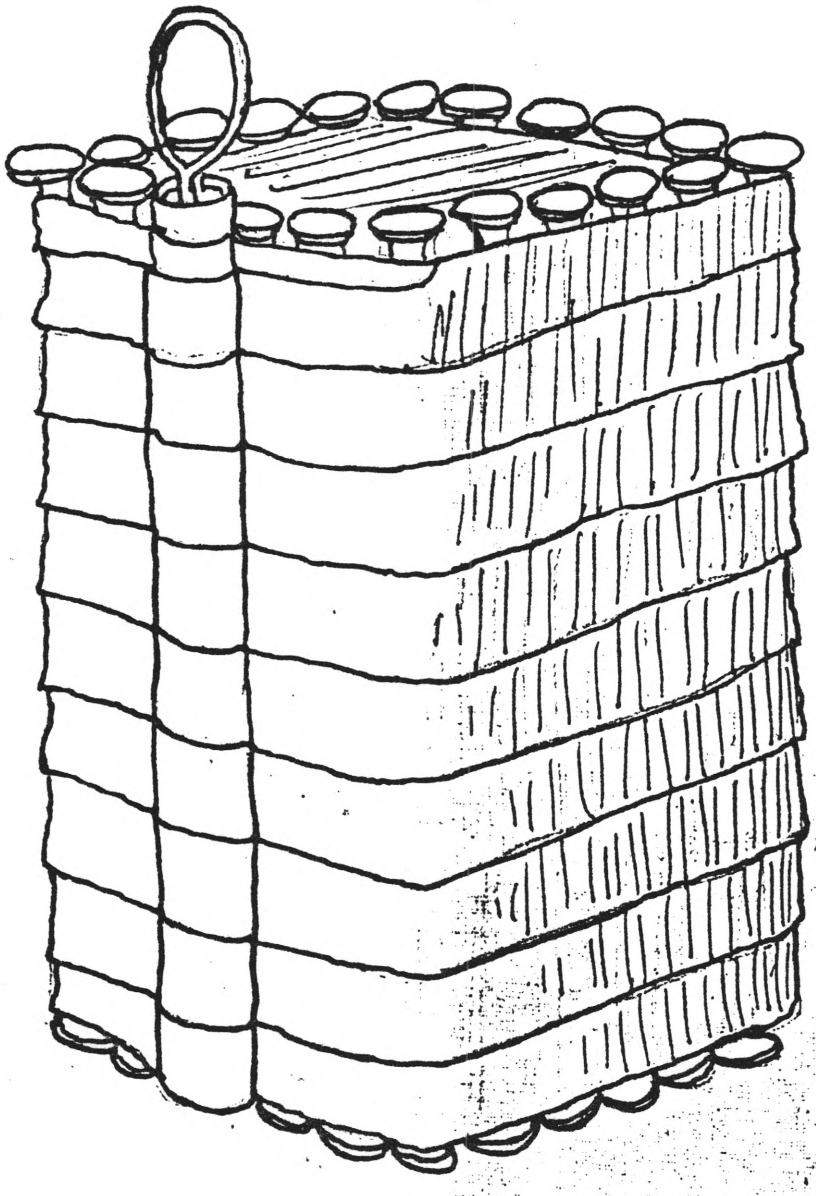
V.B. Rifle Grenade
(Vivien Bessieres)



1 Striker
2 Cap
3 Fuse
4 Detonator
5 Cheddite
6 Rubber Plug
7 Bottom plug
8 Loading plug
9 Tromblon
10 End of Rifle

17

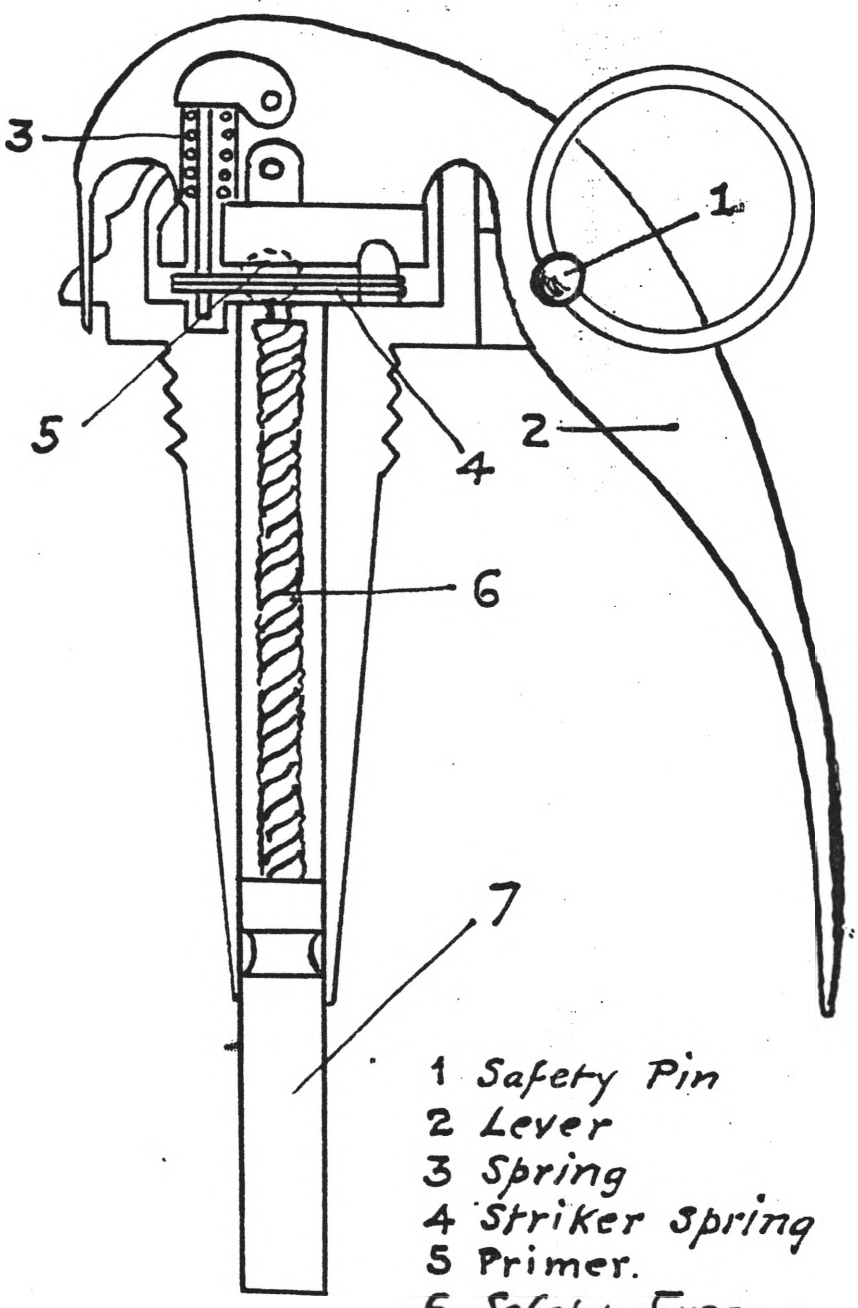
T.N.T. Improvised Hand Grenade.



Triton block & one layer of 16d nails wrapped with adhesive tape.

Cut fuse to burn not less than 5 seconds nor more than 8 seconds.

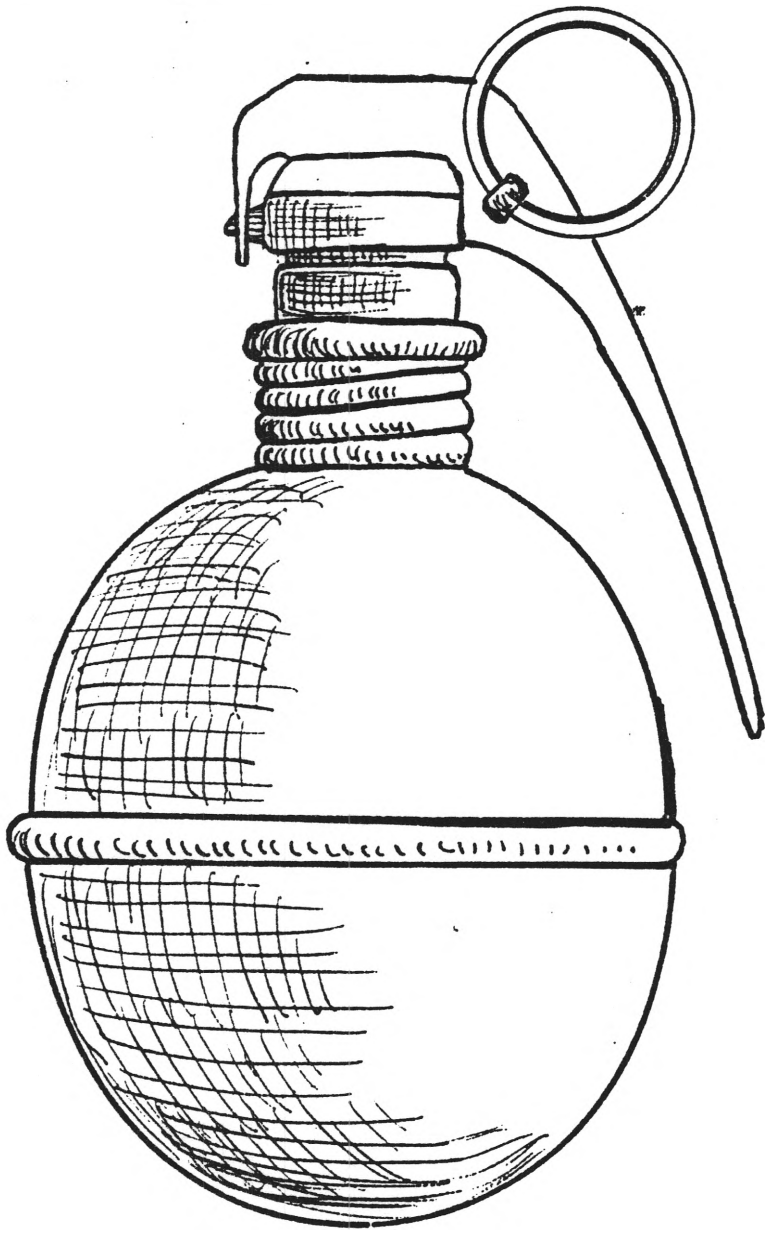
Automatic Lighting.
O.F. & P.I. Hand Grenade.



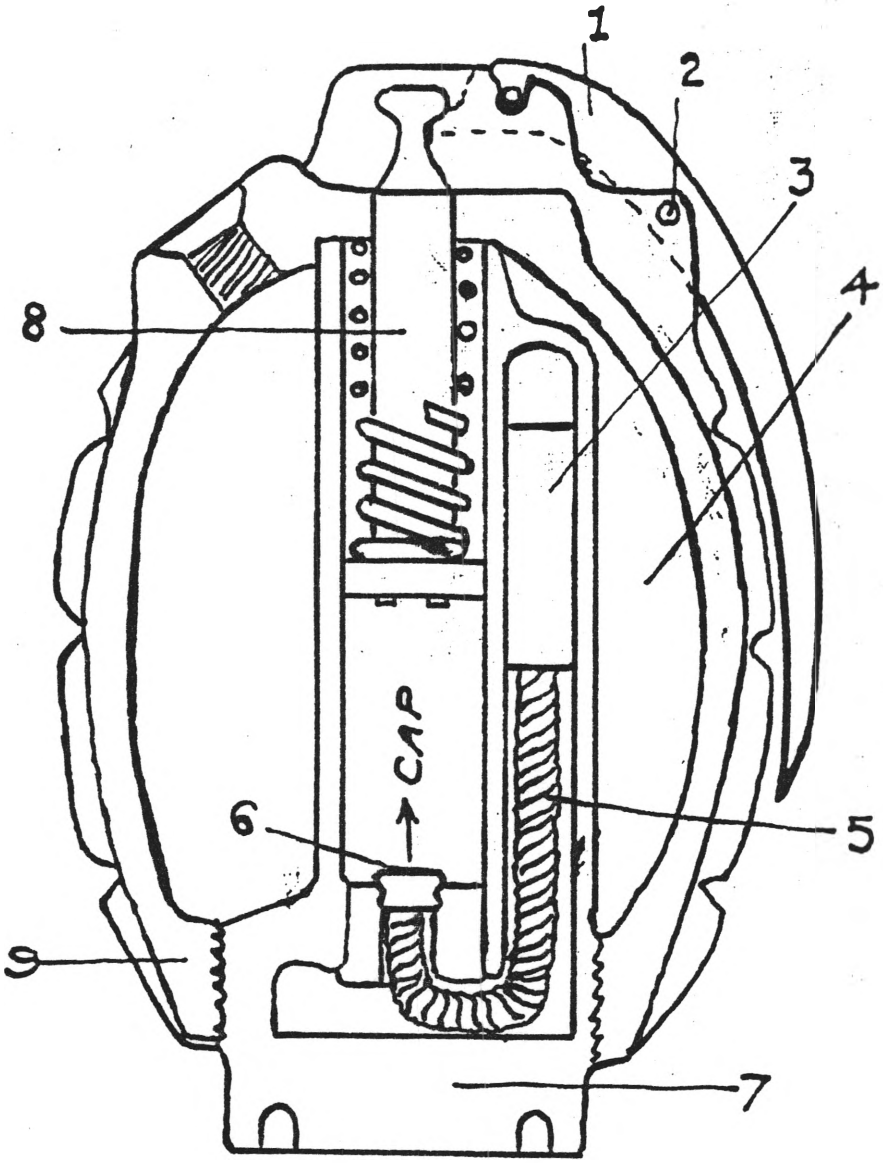
1 Safety Pin
2 Lever
3 Spring
4 Striker Spring
5 Primer.
6 Safety Fuse
7 Detonator

3

O. F. Hand Grenade. 1915



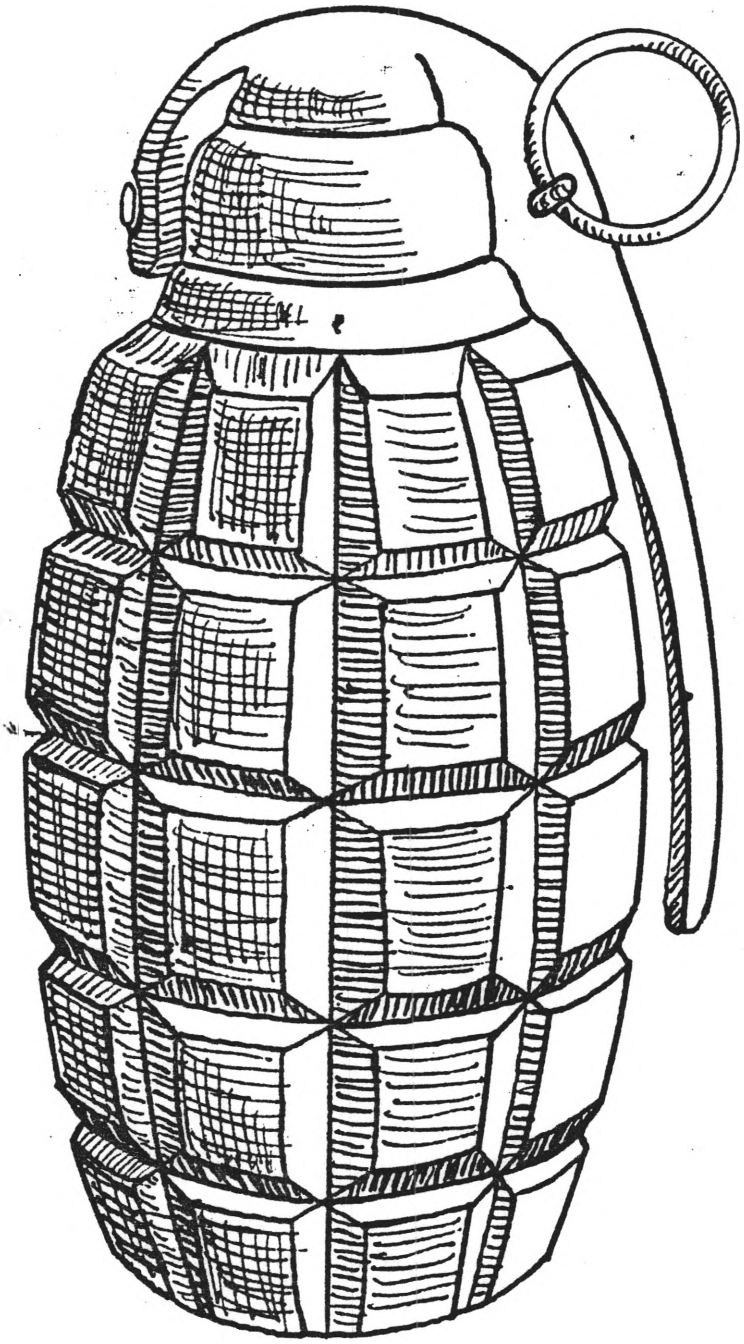
Mills Hand Grenade, No.5
Mark—1



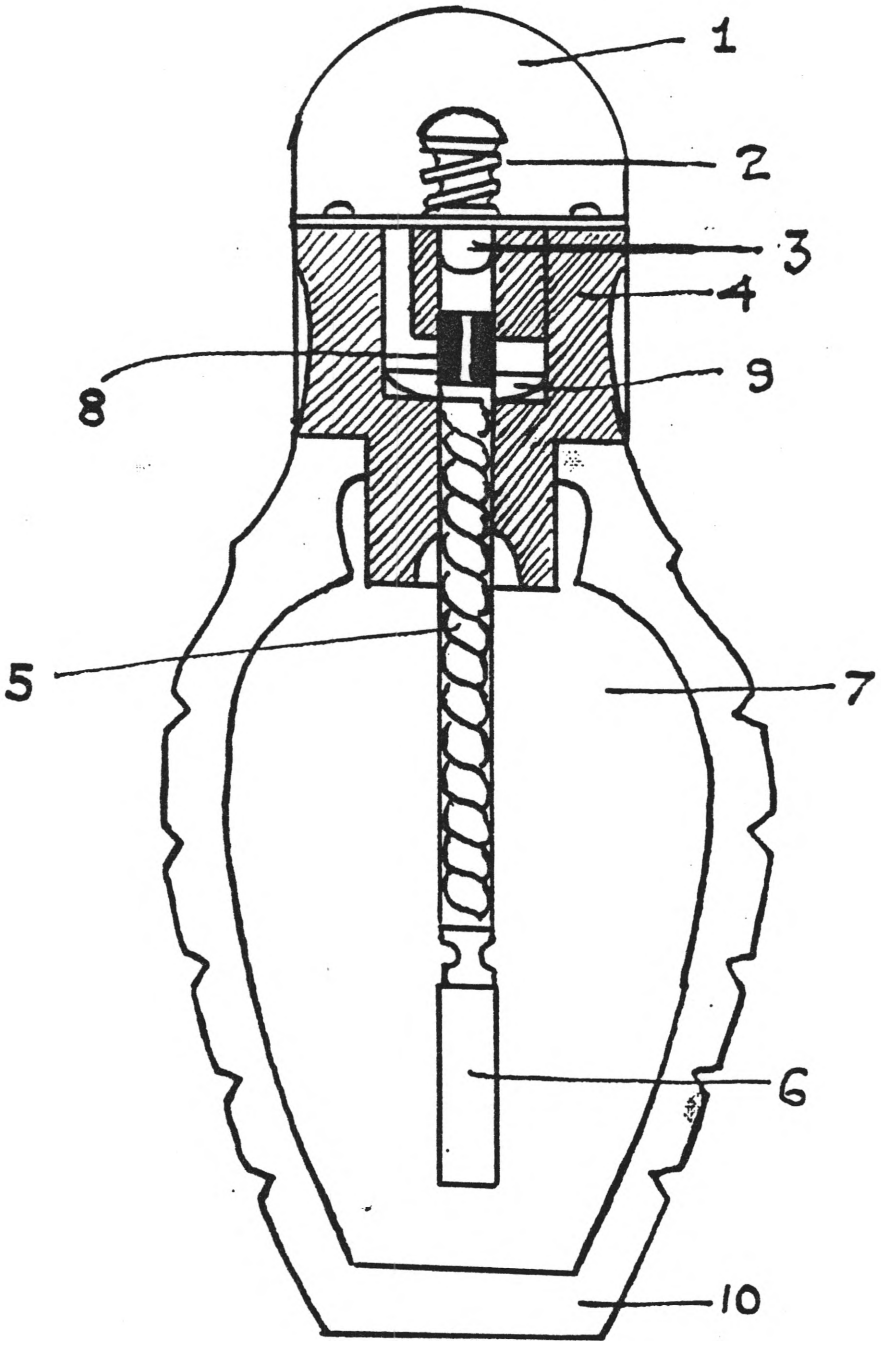
1 Striker Lever
2 Safety Pin
3 Detonator
4 Explosive
5 Safety Fuse
6 Cap
7 Base Plug
8 Striker & Spring
9 Cast Iron Body

Wt. 22 oz
Explosive
Ammonal
Time 4½ sec.

F.1. Hand Grenade. 1915

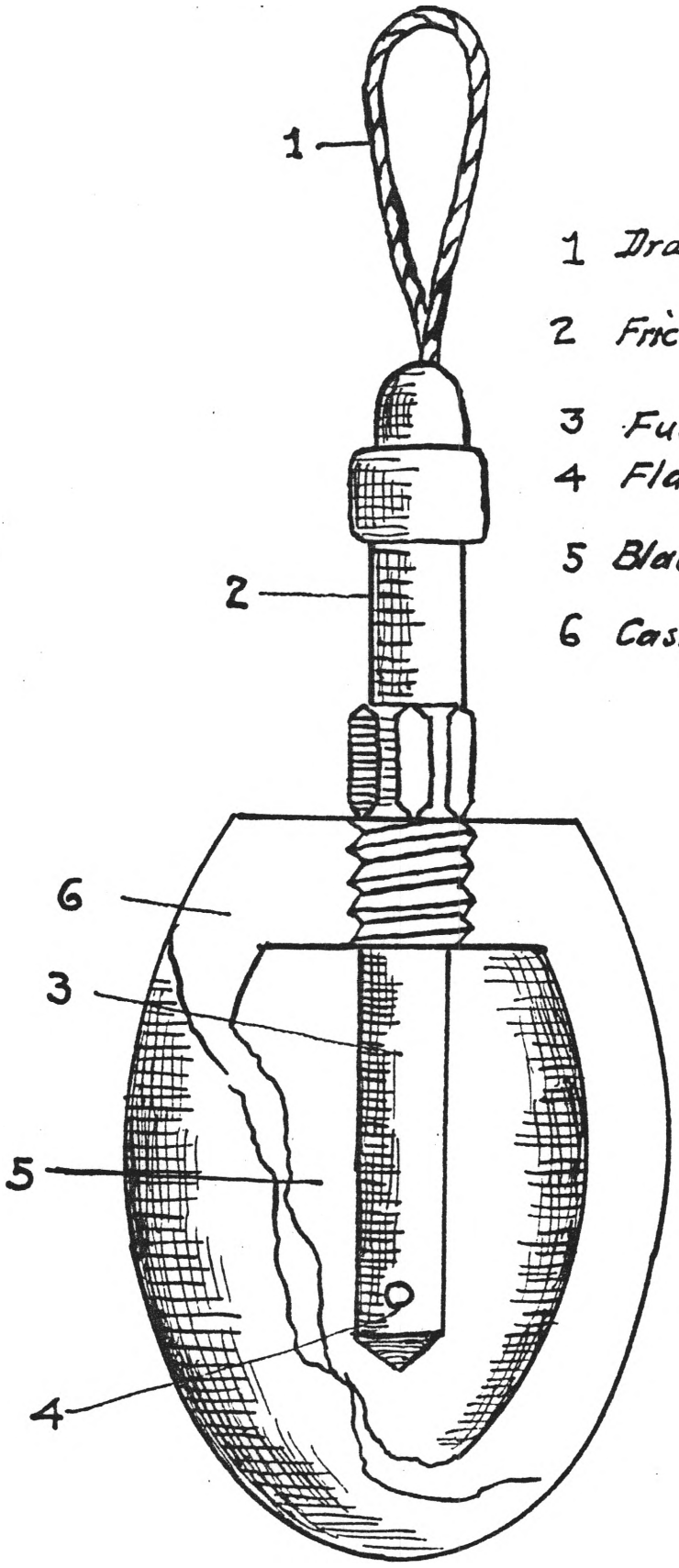


Lemon Hand Grenade.



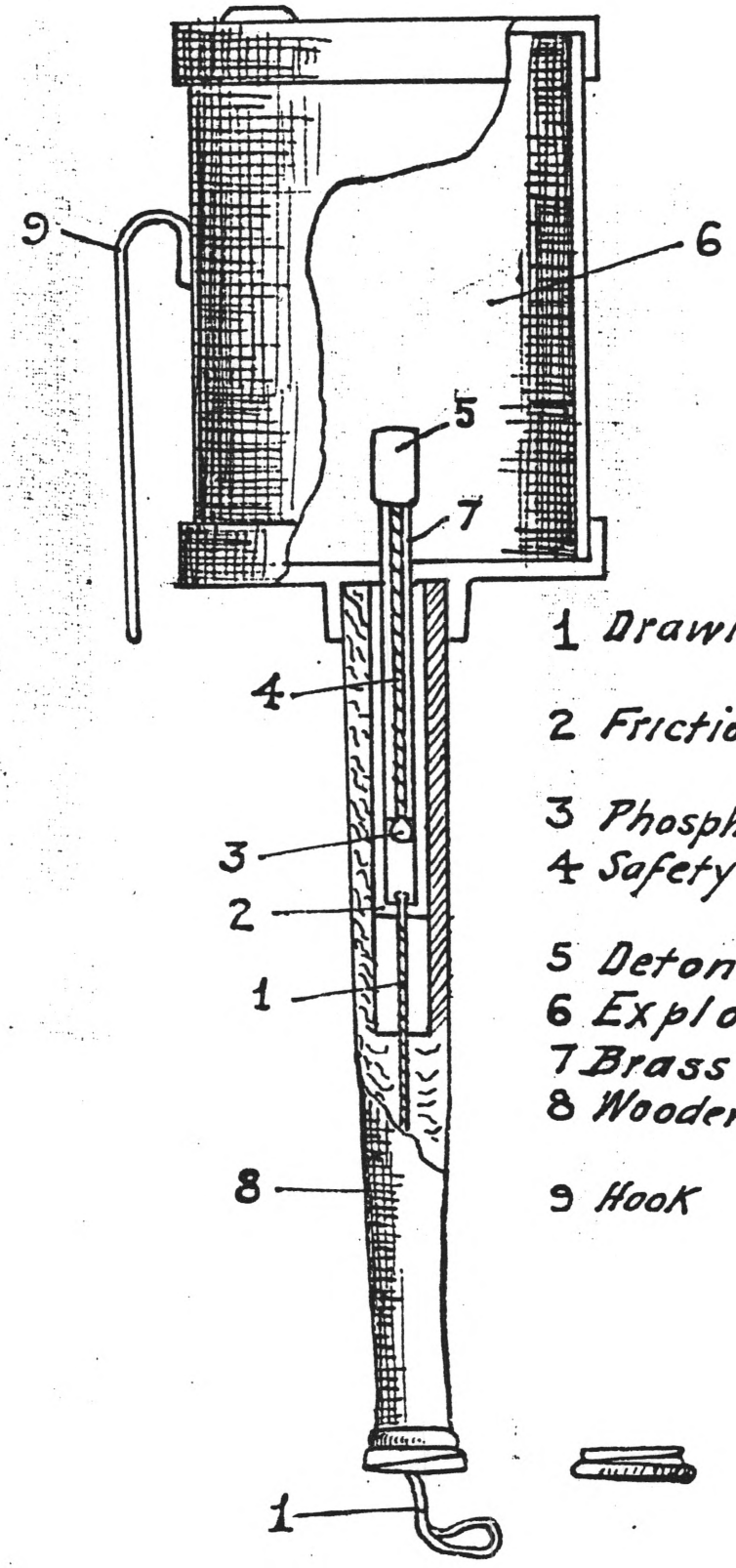
1 Safety Cap
2 Spring
3 Striker
4 Wooden Plug
5 Safety Fuse
6 Detonator
7 Explosive
8 Primer
9 Anvil
10 Cast iron body

Pigeon Egg Grenade.

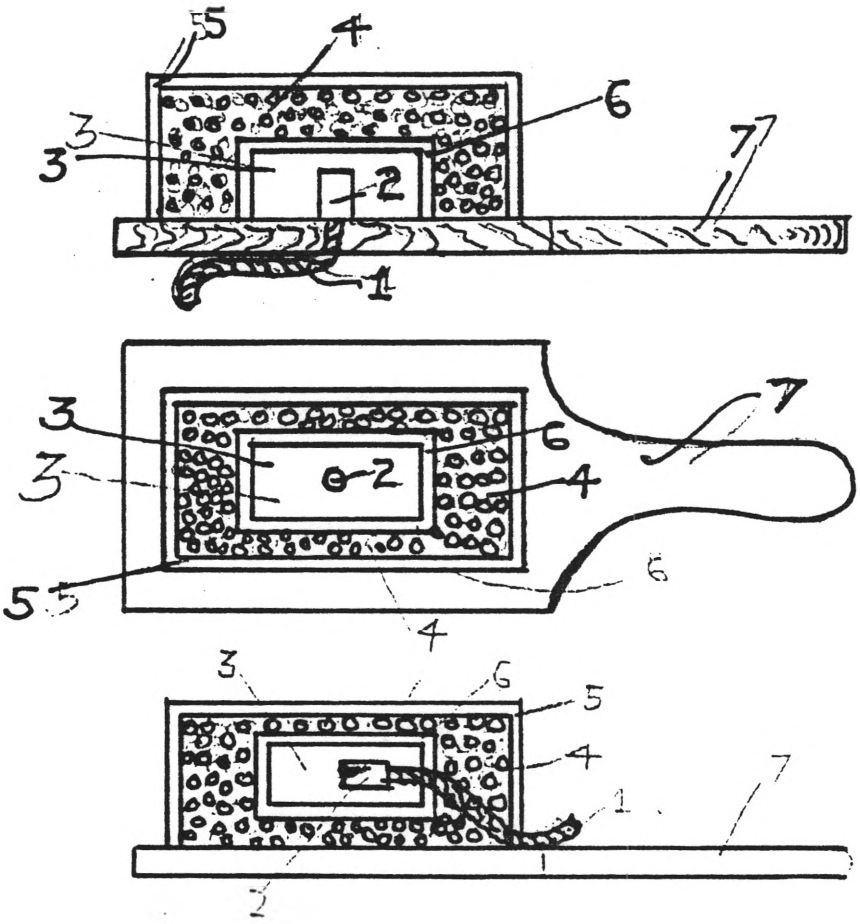


1 Drawing Loop
2 Friction Tube
3 Fuse Tube
4 Flame Passage
5 Black Powder
6 Cast Iron Body

German Hand Grenade.
The "Jam-Pot on a Stick".



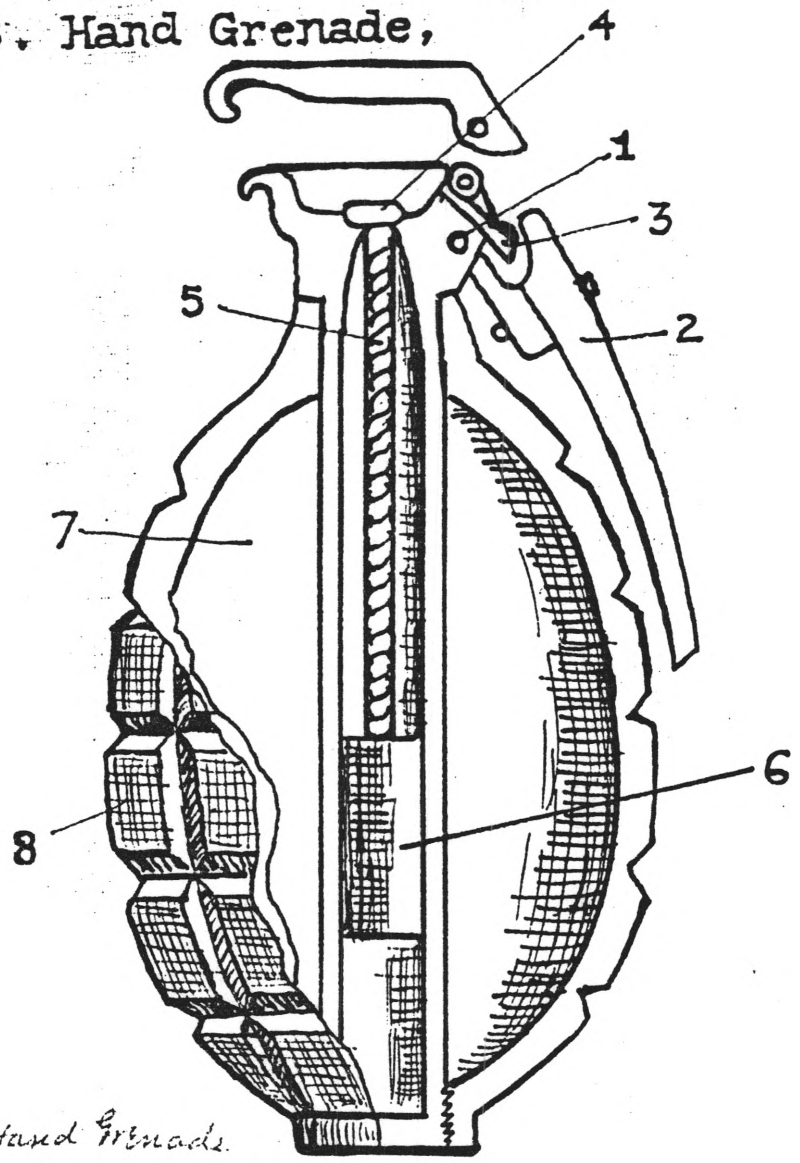
1 Drawing Loop
2 Friction Tube
3 Phosphorus
4 Safety Fuse
5 Detonator
6 Explosive
7 Brass Tube
8 Wooden Handle
9 Hook



1 Fuse
2 Defonator
3 T. N. T.
4 Pebbles
5 Sacking
6 Iron Plate
7 Wood Paddle

Mark– 1

U.S. Hand Grenade,



U.S. Hand Grenade
Mark 1

1 Safety Pin
2 Striker Lever
3 Striker
4 Cap
5 Safety Fuse
6 Detonator
7 Explosive
8 Serrated Steel Body

Wt. 22 oz. Explosive TNT

U.S. Hand Grenade, Mark 1