

Cpl H. Rayner.

2/5. Queens.

Trench Warfare Course

Maidstone.

10-22nd Jan 1915.

Fuzes.

There are several varieties of fuzes in use, The Government Safety, (two kinds nos 9 & 10). The Instantaneous, and The Commercial Safety; Cordau Detonant may also be used as a Fuze. The Government Safety Fuze, consists of fine gunpowder in twisted flax covered with gutta-percha and an outside coating of tape treated with pitch which renders it practically waterproof & it is stated to burn under water after 24 hours immersion.

It burns at about the rate of 1" in $2\frac{1}{2}$ seconds. It should always be tested before using as it is somewhat unreliable.

It is black in colour, ^{is supplied in tins of} 8, 24, & 50. fathoms Commercial Fuze is similar but is not waterproof, is black in colour.

Instantaneous Fuze, consists of

Fuzes.

Instantaneous Fuze (continued).

quickmatch enclosed in flax & several layers of waterproof tape, with an outside thread snaking. In colour it is a reddish orange. It burns at the rate of 30^* a second. Can be distinguished from Safety by colour & in darkness by snaking. Is supplied in tins of 100^* .

Quick Match cotton bored in Gov Cordite. Bourdeau Detonant is lead piping of $\frac{1}{4}$ " in diameter filled with T. N. T. (Tri Nitro Toluene), this fires about $6500^* - 7000^*$ per second, the advantage of this fuze being that it will fire several charges on one main fuze, it has however the disadvantage that it must be fired by detonator.

Fuses (continued).

Lighting Fuses.

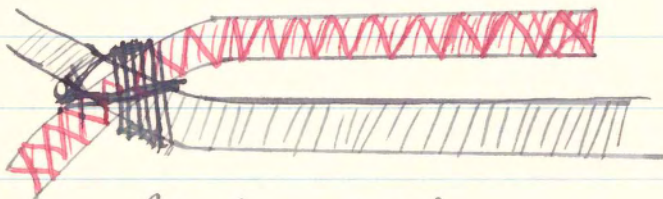
There are various means of lighting fuses,

- (1). By fusee or match
- (2). By cigarette lighter.
- (3). By Brock Lighter.
- (4) By Bickford Colliery Safety Fuse
Lighter.
- (5). By Port Fires.
- (6). By Slow Match, (1 yard in 8 hours)
Slow match consists of hemp rope soaked in
saltpetre.
- (7). By using Nicked Fuse.
- (8). By percussion cap.
- (9). By Quick Match.

Methods of jointing fuzes.

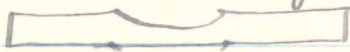


Above represents scarf joint between Safety & Instantaneous Fuze, this joint is bound with twine using a match or splinter of wood as splint or support, this joint has the disadvantage that it is apt to pull apart.



Rick jointing.

The nicks being made thus.



care must be taken in jointing that powder is exposed, also that it is not allowed to escape.

A Joint Box is used when it is desired to fire a number of fuzes simultaneously.

Detonators.

There is only one Government Detonator that is No 8. Mark VII. about 2 inches long & filled about $\frac{1}{3}$ of its length with Fulminate of Mercury, ^{35 grains} and Paraffin Wax, ~~see~~ ~~Loach~~ ~~Match~~, is painted red & is open at one end, in which fuse is carefully placed, after having looked in detonator to see that it is free from grit or sawdust, crimp end to fasten in fuse, to carry hold on by fuse, the fulminate of mercury is liable to go off very easily.

The Commercial Detonator, is a copper tube also filled with fulminate of mercury, is made in several strengths, which is designated by numbers stamped on bottom of detonators, as Nos 3, 5, 6, 8 & 10, the No 6. Commercial corresponds in strength with the Government Detonator No 8. Mark VII.

Detonators (Continued).

The reason for having detonators of different strengths, is that the sensitiveness of explosives varies. In inserting ~~into~~ detonator always make hole with wood, never use metal.

The British danger sign is RED.

The French is BLACK.



Grenade, Hand No. 5 Mark I
 or Mill's Hand Grenade

Service Grenades.

Mills Hand Grenade, No. 5, Mark 1.

Consists of

- (1). Cast Iron casing (or Body) (Segmented)
- (2). The Explosive Charge.
- (3). Centre Piece
- (4). Cap.
- (5). Base Plug
- (6). Striker Lever.
- (7). Safety Pin.
- (8). Firing Striker with Spring.
- (9). Detonator & Fuze.

The casing (or Body) is segmented to provide numerous missiles on bursting.

The Bomb is usually filled with Ammonal, sometimes Lyddite is used.

The Fuze is usually a five second one.

The Striker is kept cocked against the striking lever, this lever is kept in its position by a safety pin, the detonator is a separate

Service Grenades. (Continued)
unit and consists of detonator, safety
fuze, and cap.

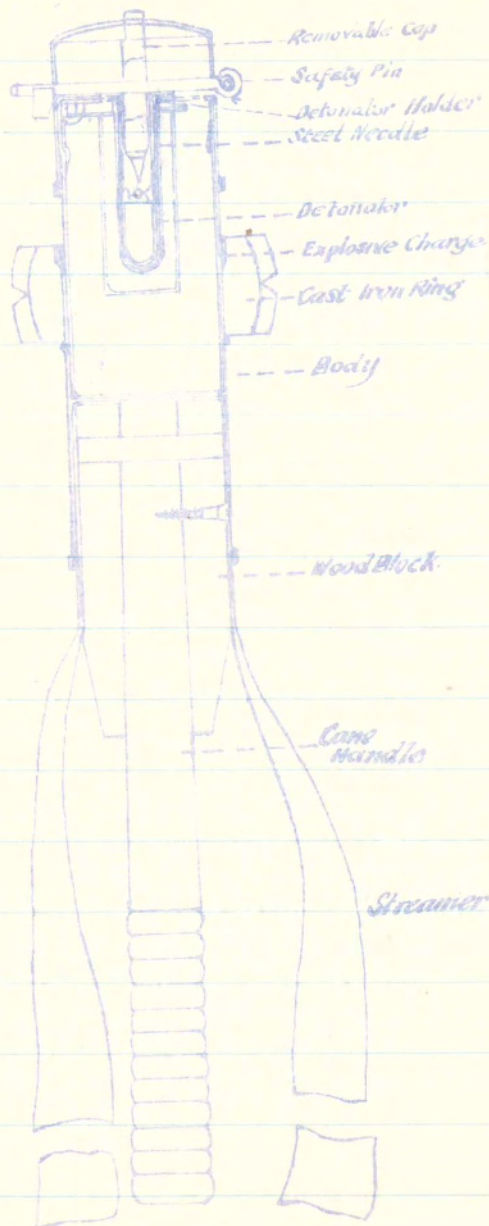
Action. After withdrawing the safety
pin, the lever springs out this releases the
spring, causing the striker to fall and hit
the cap.

These grenades are usually packed, twelve
in a wooden box, with (in a separate box)
the detonators. The weight of the grenade is
just over 1 lb. Live Mills Grenades are
denoted by red paint on the top of the
filling screw.

not complete

Precautions to be observed
unsafe when pin out

must keep firm in hand
after withdrawing pin
before firing



SCALE 1/2.

GRENADÉ HAND.

Service Grenades (Continued).

Grenade Hand. No 1. MARK. II.

also known as Stick Grenade.

This is a Percussion Bomb.

Consists of (1) Metal Outer casing with flexible cane handle.

(2). A Shrapnel or Langridge Band.

(3). Percussion cap and Safety Pin.

(4). Firing Pin (A fixture inside percussion cap).

(5). A Red Indicator on side of casing.

(6). A Detonator

(7). Filling of Ammonal or Lyddite.

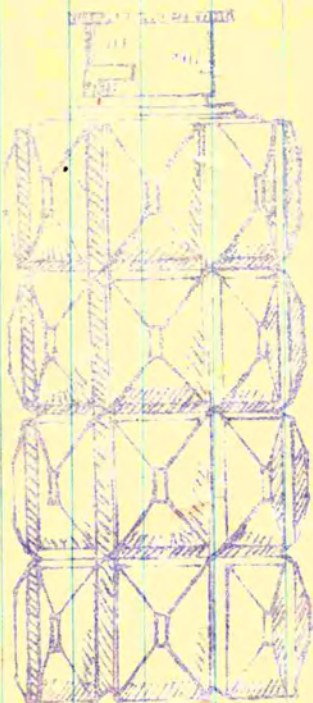
On outer side of cap are stamped the words, Remove, Travel, Fire, the cap is turned until Indicator is opposite word, Remove, when cap may be removed for insertion or withdrawal of Detonator, Travel, for safe transit, Fire, when about to throw.

Remove pin only immediately before

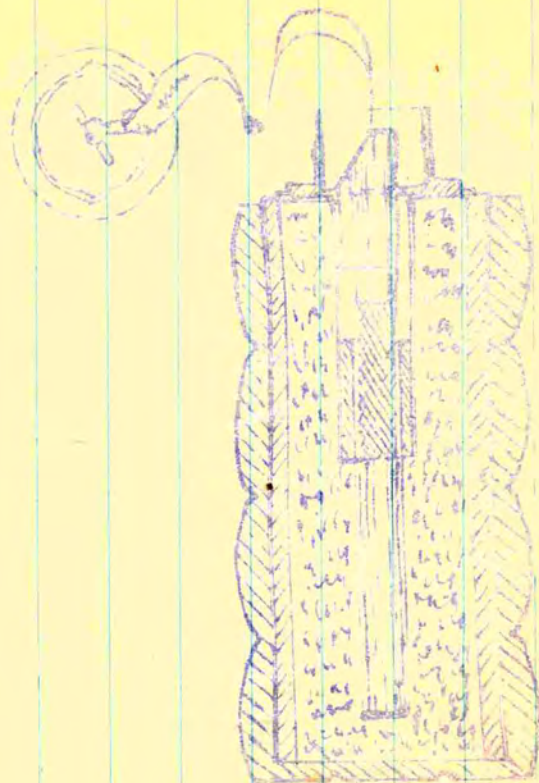
Service Grenades (continued).
throwing.

The weight of bomb when loaded is approximately $1\frac{1}{2}$ lbs. They are packed in boxes of ten, with detonators separately packed.

~~W.B. Agari~~ Pin for Safety
Must be when pin out.



ELEVATION



SECTION

Service Grenades.

The Pitcher Hand Grenade.

Body consists of Cast Iron serrated bylinder, 4" long by $1\frac{7}{8}$ in diameter, solid at one end & closed at the other by tin plug. Weight when charged $1\frac{1}{2}$ lbs.

The tin plug consists of

A. Tube to take fuze & detonator.

B. A collar on the outside made with three slots to take the three flanges on the lighter, the length of each slot is slightly longer than corresponding flange, so that when flanges have been pressed home, the extra length on the collar marked X on the grenade itself can be pressed down, so as to prevent flanges moving. This is done with a crimping machine provided with each box of grenades.

The Lighter. This consists of a metal cup containing friction tube, this cup has three

Service Grenades.

The Pitcher Hand Grenade (Contd).
small flanges on outside which fit under collar already described. Inside cup is friction lighter with a small tube projecting below it, into which safety fuze fits, a piece of thin cord 8" long is fixed to lighter inside cup, the other end of this cord is fixed to the inside of a metal cover, which fits on to the cup by means of a simple bayonet joint, before the fuze is fixed in the lighter, the small tube is kept closed by a tin cup waxed on, this prevents damp reaching the lighting composition.

To assemble. (1) Cut fuze to required length $1\frac{3}{4}$ ". (2) Remove small cup. (3) Fit fuze into lighter at one end & into No 8. Detonator at the other and crimp these joints, this should leave about $\frac{1}{2}$ " of fuze exposed between the mouth

Service Grenades.

The Pitcher Hand Grenade (continued).
of detonator and lighter, this must be covered with rubber tape provided for purpose.

To prepare for use. (1) Insert lighter, fuze and detonator and turn to right until flanges reach end of their respective slots, press down parts of collar marked X.

To Fire. Turn cover to left and pull it off, give tape a sharp pull thus igniting friction tube. (Cover and tape come away in hand).

Notes. (A). Unless parts marked X on grenade are pressed down, the whole lighter may come out when it is only intended to remove cover. B. Fuze may be lit without tape coming apart from grenade, consequently throw grenade immediately after pulling tape. These grenades are packed 23 in a box with detonators & lighters separately packed in box.

Friction

Service Grenades

Grenade Hand. nos 6 & 7. or known as R.L. Grenade.

no 6. is light consisting of explosive only.

no 7. heavy has in addition to explosive a filling of scrap iron or shrapnel.

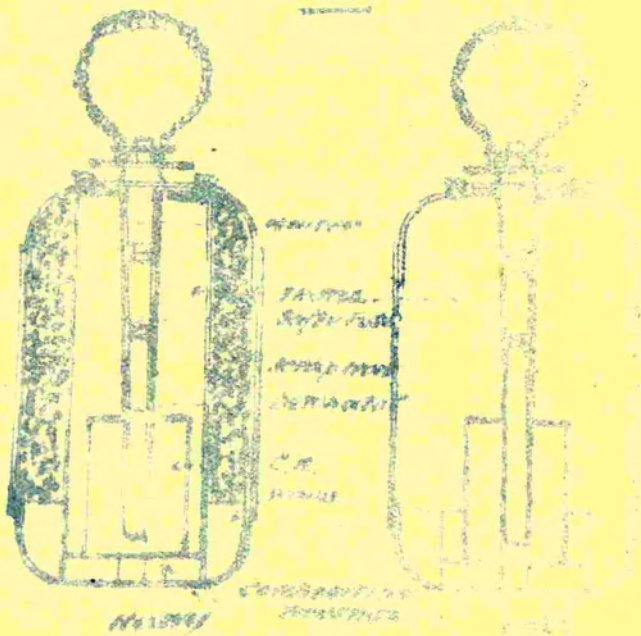
They are packed in boxes of 40 with 4 haversacks for carrying, each haversack taking 10. The heavy bomb weighs about 2 lbs. It is a friction bomb and explodes in about 4 seconds.

Body consists of tin cylinder with rounded ends $\frac{1}{4}$ " long by $2\frac{1}{4}$ " in diameter.

the heavy grenade having an outer layer of scrap iron, the igniter socket is closed by a wooden plug for transit and covered by a papier mache cap, the light grenade having explosive only. On one end of cylinder are two studs on which lighter

No. 7. Heavy.

HAND CARRIAGE PARTS
TIME



Service Grenades.

Grenade Hand nos 6 & 7. (Continued).
is fixed, a cardboard tube runs down
the centre of grenade to take the lighter
fuze & detonator, the grenades are always
carried with papier mache cap on.

The method of ignition. Friction fuze
and service detonator combined.

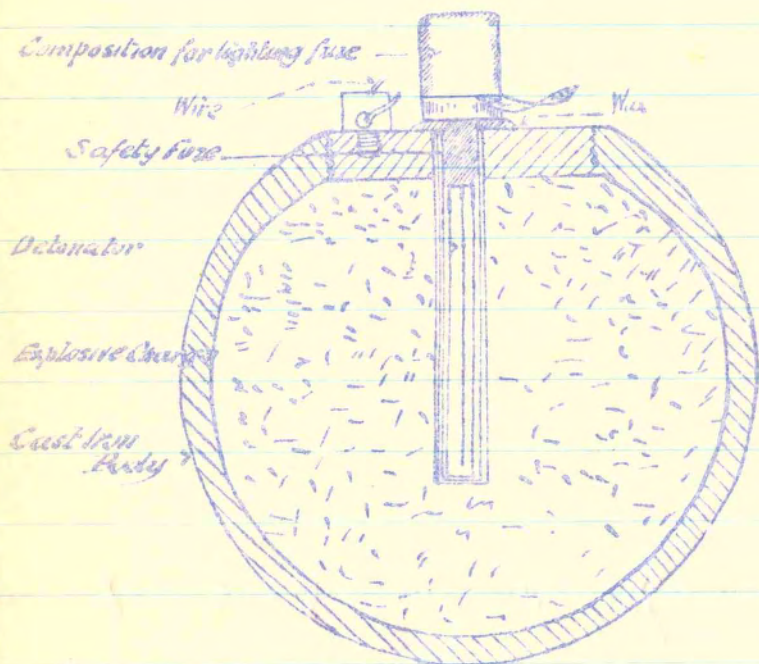
Friction igniter consists of holder to which
is fixed a flange with two notches and
two springs, it also has two horns
which form a grip for turning the
igniter into the lock position, the
friction bar is fixed to a button through
which the firing becket passes.

Instructions. (1). To prepare for use
insert igniter & clip flange under studs.

(2). Replace papier mache cap.

To Fire. Hold grenade in right hand
with becket towards wrist.

BALL HAND GRENADE



Service Grenades

Hand. Nos 6 & 7. (Continued).

2. Remove papier mache cap.
3. Pull out becket sharply with left hand & throw at once.

This grenade always to be carried with papier mache cap on.

Bricket Ball Grenade

Consists of iron shell filled with Ammonal. Cap & detonator holder with hollow to receive detonator cap screws on top.

Balls are packed in boxes of twelve with detonators separately packed.

It has a waterproof cover on top of detonator fuze, which has to be pulled off & detonator fuze rubbed on brassard on left arm, bomb to be thrown at once. Detonator fastened in by wire. Weight about 2 lbs.

No 303 Short Rifle N°3

Mark 1 (J Pattern)

Steel Body

Explosive Charge

Firing Needle

Brass Base Plug

Retain Pin

Base Plug

10 inch rod

Detonator Holder

Detonator

Detonator Cap

Coop Spring

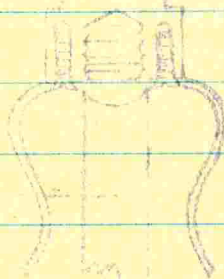
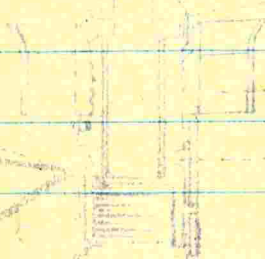
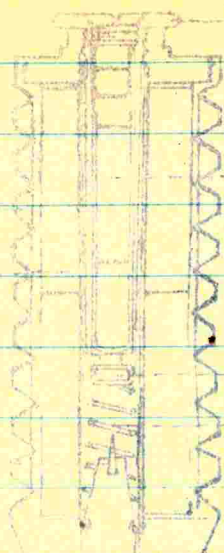
Needle Pallet

Retaining Bolts

Wind Vane

Releasing Socket

Spring Clip



Service Grenades.

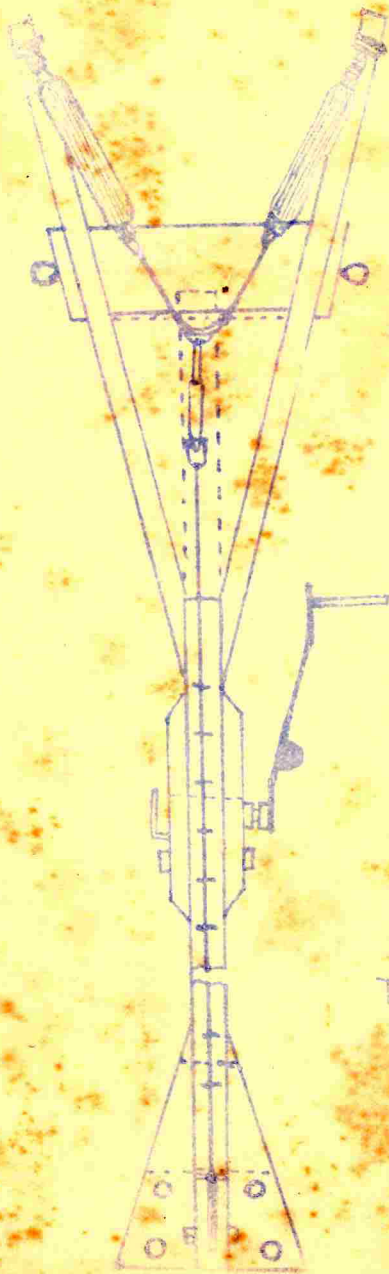
Rifle Grenade. (Short. 303.)

No 3. MARK I. J. P.

Microplate

How to fire. Take grenade out of case and unscrew ebony plug, hold grenade upside down to see that the retaining bolts are holding the needle pellet in position, pass steel rod (10") down barrel of rifle, see that clips engage the muzzle, then load rifle with special blank cartridge, then pull out safety pin, pull down releasing socket, give wind vane half turn left to see that it is in working order, screw in detonator push forward safety catch & fire.

At an angle of 45° the grenade will be thrown 220^{\times}



Trigger
belonging to
Foot.

LEACH
TRENCH CATAPULT.

Trench Engines.

The Leach Trench Catapult.

Mounting. There are eight rubber springs on either side, it is essential to see that springs are quite taut and are firmly fixed to the horns and stem of catapult. Horns to be level with the top of trench or breastwork. The best results are obtainable when catapult is at an angle of 45° .

On the side of each horn is an eye bolt, which is used either to stake or tie catapult. The bottom of catapult which is fish tailed ~~is~~ has six sandbags placed on it.

A sackful of straw or some substitute is placed on ground in front of catapult to prevent springs being cut or damaged on release. Springs must always be put straight

Trench Engines.

The Leath Trench Catapult (Continued)

To obtain tension of springs you wind up with handle on the right of engine.

The gear is self locking by means of a pawl

The bomb is placed in a pouch, there are two kinds of pouches, one wire, the other canvas.

Degrees of tension are marked on the stem in figures representing units of 20°.

To aim you get line marked on centre of stem aligned on target.

You must not keep springs on tension longer than necessary.

You must not remove pawl when at tension.

Never put your head over catapult when at tension.

Continued

Trench Engines.

The Leath Trench catapult (continued)

Methods of reducing range -

- (1). Reducing number of springs. (takes a very long time).
- (2). By altering degree of tension, (takes a long time, though quicker than previous method).
- (3). By reducing tension. (quickest method).

When at full tension the catapult will throw

| | | |
|---------------|-------------------|---------------|
| a 4 lb. bomb. | 96 ^x . | } approximate |
| a 3 . . . | 150 ^x | |
| a 2 . . . | 220 ^x | |



Setting Lever.

WEST SPRING GUN.

Trench Engines

The West Spring Gun.

The bed of the gun resting on the base, should be placed on level ground, with tool box to the rear to avoid all rocking motion. Sandbag boards should be placed in position & fixed by means of the steel hooks which engage under the base, and six full sandbags placed on each board, place arms in the arm sockets, they should be pushed well home, then bolt firmly the bomb cup on upper side of arms, the arms should then be firmly clamped in position, this should never be done until bomb cup is properly fixed, place firing lever on square end of trigger screw spindle.

Firing. Place lower half of setting lever in position, pull down until extension can easily be placed on to it,

Trench Engines

The West Spring Gun (continued)
then pull down setting lever until trigger
bar engages right home in the hook of
trigger, place bomb in cup centrally and
resting against elevating screw, keep
clear of arms when set, the elevation
of throw is governed by the height of
elevating screw inversely, (elevating screw
being high throw will be low & vice versa).
the length of range is governed by the
tension of the springs on the graduating
tension screw.

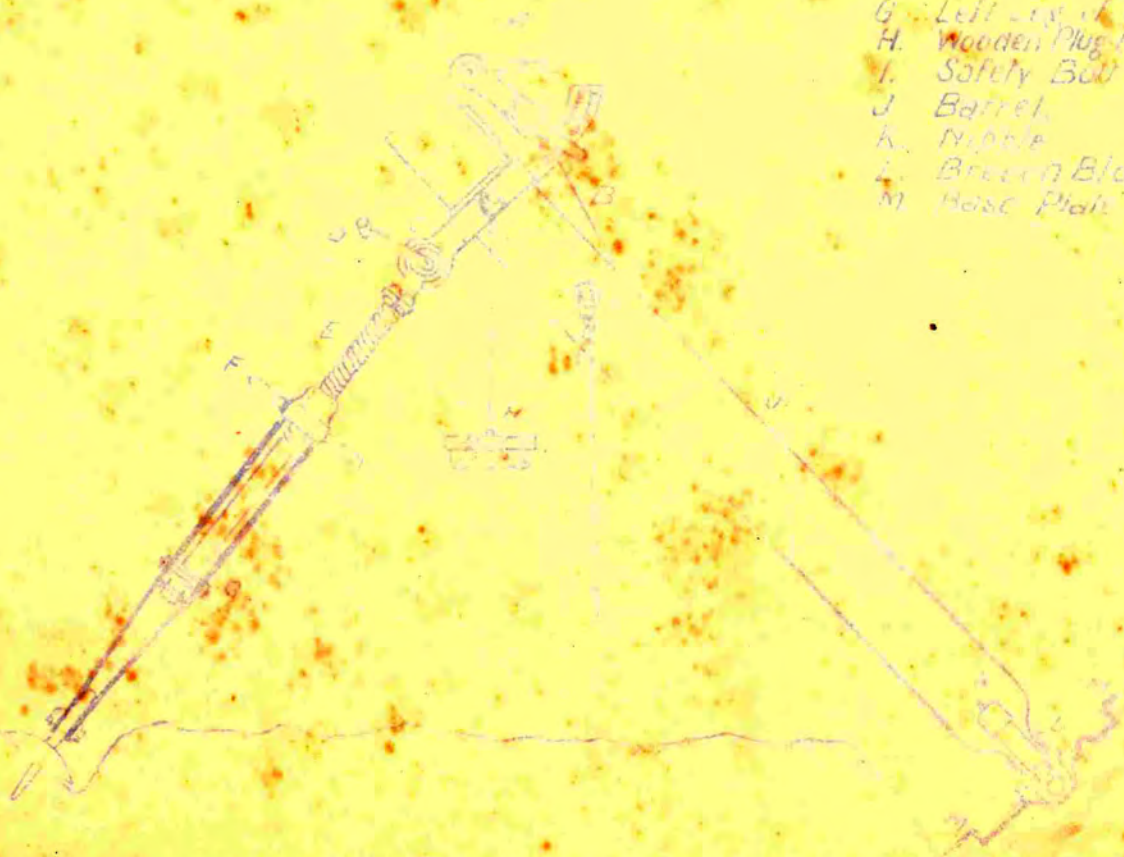
The loosening of the wing nuts on the base
frame enables machine to be traversed right
or left by hand. (15° maximum).

To change cup loosen arms first.

Further
incomplete

STOKE'S GUN

- A. Clinometer
- B. Periscope Stand
- C. Traverse Bar
- D. Do. Handle
- E. Elevating Screw
- F. Do. Handle
- G. Left side of Stand
- H. Wooden Plug for Muzzle
- I. Safety Bolt & Lever
- J. Barrel
- K. Muzzle
- L. Breach Block
- M. Base Plate



Trench Engines -

The Stokes Gun.

This gun will fire 20 shells a minute.

Weight of shell for 3 inch. 15 lbs.

" " " 4 inch ^{about} 24 lbs.

Each equipment consists of following.

1. Barrel
2. Supporting legs, with traversing and elevating screws.
3. Base plate.
4. ~~Thermometer~~. ^{clinometer}
5. Periscope stand
6. Cleaning rods, spanners, oil, cotton waste etc.

The barrel is made with removable screw cap close to base, this screw cap carries striker which explodes the cartridge, a little way down barrel is a pin which prevents shell dropping down barrel until all is ready, this pin is

Trench Engines.

The Stokes Gun. (continued).

fitted with a shackle and lanyard for withdrawing pin, a collar close to the top of barrel is fitted with stand for periscope. The support legs fold together against barrel for purposes of transit. *transport.*

The base plate is formed of pressed steel stiffened so as to take the recoil of barrel, on the base plate are ~~three~~ hollowed out depressions, the centre depression is used for firing straight to the front, the others are used for lateral deviation, moving the barrel from one to the other giving a lateral deviation of 25° ; lateral deviation may also be obtained by use of handle at top of supporting legs.

The supporting legs are threaded and a handle is provided to wind up or down as required for elevation.

Trench Engines.

The Stokes Gun. (continued).

The best results are got from this gun when it is placed at an angle of 45° .

The shell has a pointed cap which is fitted with a safety pin which must be removed before dropping shell down barrel. The shell is filled with Ammonal or Lyddite & has a socket at base in which is placed an ordinary sporting cartridge filled with Balastite this shell is exploded on same principle as the Mills Grenade.

For sighting purposes this gun is fitted with a ^{clinometer} ~~Altimeter~~, one side of which is red and the other green, this is used in conjunction with the two different kinds of cartridges, one red and the other green, red being the stronger.

(continued)

French Engines.

The Stokes Gun. (continued)

Ranges.

3" Gun with Green cartridge extreme range 300*.

3" Gun with Red cartridge extreme range 430*.

4" Gun with Green cartridge extreme range 360*.

4" Gun with Red cartridge extreme range 600*.

Causes of Misfires. (1) Dirty Gun. (2) Dirty Shell. (3) Loose striker. (4) Angle of gun too small, that is below 40° . (5) A bad cap.

Operation of gun ??

incomplete
? gun team

Barricades.

A barricade built of clay should be at least 5' thick to be bullet proof, if built with loose earth or sand at least 3' 6" thick.

A sandbag when filled with earth should be 20" x 10" x 5".

All barricades must be loopholed, & the loopholes should be made with a downward slope, to allow firer to command trench along the bottom.

If time allows a peephole should be arranged at the kneeling position & of sufficient size to get a clear view through.

Sandbags to be tied up with string & strings to be placed inwards, with sandbags laid header & stretcher fashion.

The reason for having a peephole is to enable defender to see from a position of cover.

Loopholes have a downward slope to

Barricades (continued).

obtain fire on the bottom of trench & prevent enemy crawling along floor of trench.

Strings are placed inwards to prevent escape of sand.

Sandbags are placed stretcher & header fashion for firmness.

Frequently a way is made round a barricade but spare sandbags are kept at hand to fill this way up in case of need.

These barricades must be bullet proof.

Dummy barricades may be built in front of barricades & form a trap for the enemy.

Trench Fighting.

The objective of a trench storming party is to obtain as much of the enemy's trench as possible.

In a narrow trench the only portion of the party directly able to kill is the head.

Notes on formation of Trench Storming Parties.

1st Grenadier Party, as under—

- (1) 2 Bayonet Men
- (2) 1st Bomber.
- (3) First Carrier.
- (4) N.C.O. Group Leader.
- (5) Second Bomber.
- (6) Second Carrier.
- (7) 2 Spare Men (Preferably Bayonet Men).

Making nine men in all, following them is the 2nd Grenadier Party, of same formation as 1st Party, there will be a short interval between these parties but they must keep in touch.

Trench Fighting.

Formation of Storming Parties (Contd).

Immediately following the 2nd Party is the O. C. Storming Party, followed by 3 Engineers including a N. C. O. then comes the 3rd Grenadier Party, followed by the Fourth Party, immediately behind which is the Second in Command of Storming Party, then comes a Machine Gun Detachment if available & necessary, then a Barricading Party, consisting of 6 to 8 Engineers with tools & sandbags, then Reserve Grenadiers fully loaded with Bombs and lastly Reserve Bayonet Men.

Note. Do not crowd in trenches, but you must keep in touch, two men in a traverse is correct spacing.

Before starting an attack every man must clearly understand what is about to be undertaken and the direction of attack.

Trench Fighting.

Every man in a storming party must know how to use a hand grenade & use same if necessary.

O.C. Party must make arrangements about supplies and replenishing of bombs.

Nobody must be put in charge of bomb supply or depot unless he be a trained grenadier.

To make a successful bombing party every man in it should be able to carry out every component part.

Casualties must be systematically & promptly replaced.

Every man must carry folded sandbag. If a bomb drops in trench and the kind of bomb makes it reasonable to risk, throw it back, otherwise throw greatcoat or something similar on it & turn your back.

(continued.)

Explosives.

Explosives are roughly of three kinds

High Explosive. Shattering

Low Explosive. Lifting (non-shattering)

P.P. Explosive. Propellant.

Explosives for Government use must be,

Safe, Reliable & Simple.

Gun-cotton, is supplied in the form of slabs, which are wet containing from

15% to 20% water (by weight) having a total weight of 15 oz, if weighing less should be moistened, they have a hole in

centre for insertion of primer, which is

conical in shape & consists of dry gun-cotton

& has a perforation for detonator.

The slabs are 6" in length by 3" and $1\frac{3}{4}$ " thick are packed in boxes of 16 protected by

lead or tin foil. The primers are in tin cylinders of ten, ten cylinders to a box.

Gun cotton must be detonated.

Explosives.

Ammonal.

Ammonal is probably the most commonly used high explosive ~~in use~~ at present, composed of ammonia, charcoal & powdered aluminium, looks like black lead powdered and will not burn, when wet is useless, issued in tins of $\frac{1}{2}$ lb. 1 lb 2 lbs 5 lbs & 10 lbs.

T. N. T.

T. N. T or Tri Nitro Toluene composed of Ammonium Nitrate, powdered aluminium and charcoal, is dull grey in colour, is in use at present claimed to be higher than either Gun Cotton or Dynamite. Requires a strong detonator. Is easy to transport but must be kept dry & must be kept in an airtight case, being in powder form is very useful for filling bombs.

Explosives.

Blastine.

Blastine does not contain Nitro Glycerine. It does not freeze nor does water have any effect on it. Requires a service detonator. Is bright yellow in colour. Works best if not too tightly tamped.

Dynamite No 1.

Composition. 75 parts Nitro Glycerine. 25 parts Infusorial Earth. (Kieselguhr) Freezes at 40° Fahr. Is issued wrapped in parchment. If paper looks oily let it alone. (Nitro Glycerine seeping out). When frozen is very dangerous, should one have to thaw it, do so in proper "warming pan"

Gelignite.

Composed of 60% Nitro Glycerine, 7% Wood Meal 8% Colloidion Cotton and 25% of Nitre, it acts like dynamite.

Explosives.

Blasting Gelatine.

Blasting Gelatine is the highest of nitro-glycerine explosives. Freezes at 40° .

The thinner the jelly the more sensitive it is.

The four explosives most likely to be met with are Gun cotton, Blastine, Ammonal & J. N. J.

Nothing about
Revolutions & Reverses at ranch
Why?

V. Farn
J. J. Biddolph
21.1.16 major

The Stokes Gun.

consists of a barrel 4' 6" in length with a 3" smooth bore, it weighs 48 lbs. It has supporting ^{legs} which weigh 26 lbs and are provided with elevating and traversing gear. The end of the barrel rests on a baseplate weighing 29 lbs, and has three hollowed out depressions for traversing. The barrel is fastened to the supporting legs by means of a detachable collar fitted to the traversing gear, there is also on the barrel a periscope slot. The gun fires a steel shell filled usually with Ammonal, a very powerful high explosive, the weight of shell when filled is 10 lbs 11 oz, and it is fitted with a time fuse. A red band round the top of shell denotes that it is a live shell, a pink band halfway down the shell denotes that it is filled with Ammonal

A yellow band halfway down the shell denotes that it is filled with Lyddite. Guides or plates are at either end of the shell which guide it down the barrel, at the bottom of shell is a cartridge container with a number of holes drilled through it, at the top is a screwed boss, the centre of shell has a brass tube running through it called the Gaine tube, this tube is fitted with a flanged top to prevent it slipping. The Shell is fired by a Ballistite cartridge, these cartridges are made in three strengths, and are coloured according to their strength as under.

Yellow 95 grains Range $90^x - 220^x$

Green 120 grains .. $200^x - 300^x$

Red 175 grains .. $280^x - 430^x$.

These cartridges are shaped like ordinary sporting cartridges, ^{the shell is} and are propelled by the gases generated by the explosion of cartridge

Action of Shell.

The shell is exploded by means of time fuse. It is fitted with a M.K. VII Commercial Detonator containing 30 grains of F of M . At the top of time fuse is a percussion cap and the fuse is marked into seconds & $\frac{1}{2}$ seconds, a line for a second, a dot for $\frac{1}{2}$ second, the fuse is placed down the tube in centre of shell and is lighted by means of apparatus similar to the Mills Grenade. The shock of explosion at bottom of gun throws a small creep spring off its balance, the brass plunger falls down and releases lever, lever releases spring in pistol head, which drops striker on to percussion cap on top of fuse, lights fuse ^{explodes detonator} and thus explodes the charge.

Glinometer is an instrument, showing length of time it takes shell to travel required distance also gives correct elevation.

Stokes Mortars, their work and organization in
Trench Warfare.

Personnel of Battery.

Officers Other Ranks Batmen

4 42. 4.

it is usual to increase this strength as under

Officers Sgt Major QMS Sgts Gunners Batmen
6. 1 1 2. 48 6

with also Cooks 3, Sanitary Men 2, R.A.M.C. 4
Orderlies or Runners 2. Total 75.

150 % more to be trained and held in
reserve in their Battalions.

In taking over the trenches the Battery
Commander & S.M. should go up the
day before and inspect the line the
Brigade will hold and obtain all the
information they can from the Battery
they are taking over from, if possible getting
a map of that portion of the line, have all
Emplacements & Dumps pointed out to them
also spots which get particularly heavily

shelled, find out whether the Germans there have any particular times or occasions for shelling our line. Before the old Battery is relieved the Comdr of new Battery will sign for all Amm: left behind, taking care to see that it is in good condition, this is an important point, the condition of the Amm: It is an advantage if it can be arranged for the Batteries to change over on a different night to the Infantry to avoid crushing and overcrowding, also get the guns carried as near as possible to the trenches by transport.

Rations for T.M. Batteries will be carried by M.G.C or Bde H.Q.

A good system for arranging the carrying out of reliefs is to have a guide from each gun crew of the Battery in the trenches to meet and guide the gun crew of the same number of the relieving battery, directly the relief is completed, the No. 1 of each gun crew should report to his Section Comdr

relief carried out. No I of each gun team should get all the information they can out of the team they are taking over from, such as, where the First Aid Men are, where Telephone is, where Battery H.Q are. Battery Commander to get from Brigade if possible two stretchers and four bearers for use of Battery. It is a good plan to get all food cooked in one big Ditch, this plan saves distribution of rations, needs only one cook and avoids several fires. Usually half the Battery are in the trenches at one time, the remainder are resting, these resting men assist in the bringing up of rations at night, the 2 M.S should see that the rations are brought as close to the trenches as possible by transport, the M.G.C will be found usually to provide better transport etc than the Brigade. When the Battery is in the trenches the Commander is directly responsible to the Brigade, the Battery or its personnel does not come under the control of Infantry Commanders. There are a number of chits to be made out each day the principal of

which are the "Amount of Ammunition Expended" and the "Return of Casualties". All indents for Ammun should be addressed to the Staff Captain also all enquiries about food, material and clothes. Applications for Fatigue Parties go to Bde Major. As soon as the Battery Commander has taken over he should send in particulars of his frontage to the Brigade Major with a map of line, shewing Gun Emplacements and Ammunition Dumps, also he should communicate with nearest Inf Bn. Carrying parties for Ammunition will be furnished by the Infantry, also working parties unless there be a Pioneer Battalion handy.

Every gun team should have the importance of their unit and its work impressed upon them.

Rapidity in getting into action is of great importance.

Open Warfare

The work of Stokes Mortars can be considered in three different phases of the assault.

1. Immediately after Zero and until the Barrage lifts from the enemy front trench.
2. During the remainder of the advance.
3. After the objective has been captured.

1. Stokes Mortars can be used to strengthen the 18 pr. Barrage, the Barrage will be either on the Front Line or Support Line Trenches Stokes Mortar fire being directed especially against M. G. emplacements or any strongpoint which requires extra treatment, they must conform to the movements of the 18 pr. Barrage, commencing at Zero and lifting in accordance with the Artillery Programme, success in this phase is ensured by

- (1) Good emplacements.
- (2) Careful registration.
- (3) An ample dump of Ammunition.

Should the assault fail to reach the enemy's front trench, the Stokes Mortars must at once reopen fire

on the enemy's trenches and M.G. emplacements,
and continue this fire until the Artillery Bombard^{ment}
recommences.

2 During the remainder of the advance.
Once the Infantry have crossed the Enemy
Front line, the Stokes Mortars must be
moved forward before they can be employed again
the task for which they are best suited and for which
they will most often be required is that of dealing
with enemy M.G. emplacements or strong
points which temporarily hold up the advance,
if a Stokes Mortar can be got into position a short
hurricane bombardment of not more than two
minutes duration followed by a determined
rush with the bayonet will usually succeed in
overcoming the opposition. For this purpose it is
usually advisable to place one Stokes Mortar at the
disposal of each assaulting Battalion, these Mortars
must move forward with the assaulting column
usually in rear of the column. The best plan is

to send forward to a prearranged rendezvous, previously notified to all concerned, this rendezvous to be either in the Front or Support Line Trenches, any company requiring assistance will then be able to find the Mortar easily.

Cooperation between the Infantry & Stokes Mortars can be best obtained by as much training together as possible.

3. As soon as the objective has been captured, some Stokes Mortars must be sent up and established in the rear of any blocks that have been established in Communication Trench, here they will be of great value in assisting the bombers to repel attacks.

Distribution of Mortars with two Battns attacking, during the first phase, all Mortars in action in vicinity of our own Front Line Trenches, during the second phase all Mortars follow up advancing columns to prearranged rendezvous in enemy Front or Support Trenches. One Mortar in rear of each Batta and remainder

of the Mortars at some central position under the Battery Commander.

A party of ten men for carrying Ammunition will be required for each detachment, these carrying parties will be drawn from the Infantry.

In all Bombing attacks Stokes Mortars must be used to prevent ~~the~~ reinforcements and ammunition reaching the enemy.

The eight guns would probably fire 2000 rounds in Barrage, wet sandbags should be tied round the bottom of barrel to keep gun cool.

Concentration of fire is of great value.

All watches should be synchronised.

During preliminary bombardment guns should be as near as possible to one another to facilitate control. Do not block up any trench used by Infantry. Care should be taken to get a large enough supply of Ammunition, if 2000 rounds are to be fired ask for Fatigue Party to

carry 3000 rounds, it is better not to put ammunition in one large dump but rather to split it up into a number of small dumps.

Each gun team should consist of five trained men with ten ammunition carriers numbers four and five of gun teams will also carry ammunition, but these two must keep close to Nos 1, 2, & 3, to take their place in event of casualty.

A stretcher is a very satisfactory means of getting gun over. All ammunition carriers should have coloured band fastened securely on their arm. A prominent spot must be pointed out to gun teams and barriers before they advance.

Transport of Ammunition.

The Ammunition is carried from Rail Head to Divisional Dump by Mechanical Transport, from there to Brigade Dump by G. S. Wagon, the Bde Dump is the best place to have the shells fused, from the Bde Dump to the Advanced Bde Dump the shells will be carried by Fatigue Parties. Advanced Brigade Dump will be practically in line with the Front Line. In dry weather shell holes make good dumps. An Advanced Dump should contain at 2000 rounds.

Stokes Mortars working with Bombing Parties, on these occasions a system of signalling should be prearranged and thoroughly understood by all concerned.