# AMMUNITION BULLETIN Nº18.

CONTENTS - Contd.

-8-

The cap chamber is passed over the safety fuze on to the sleeve of the

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AMM[N]
2850
C.I.A(6)
57529

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# AMMUNITION BULLETIN Nº18.

## FOR INSPECTING ORDNANCE OFFICERS.

( APRIL 1941 )

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CHIEF INSPECTOR OF ARMAMENTS,
WOOLWICH, S.E.18.

R. 3264.

SECURITY.

# AMMUNITION BULLETIN NO.18.

## For INSPECTING ORDNANCE OFFICERS.

April, 1941.

(There was no issue in March).

ISSUED BY :-

CHIEF INSPECTOR OF ARMAMENTS,

WOOLWICH.

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CONTENTS.

CONTENTS - Contd.



ENEMY AMMUNITION.

213. GRENADES S.I.P. - STORAGE

The instructions relating to storage of the grenades given in Item 183 of Bulletin No.16 are cancelled and substituted by the following.

The Storage Policy for S.I.P. Grenades has now been revised. In future the storage of these Grenades in Ammunition depots is permissible provided that the necessary safety precautions can be observed. It should, however, be noted that, owing to the fire risk inseparable from these grenades, and the very large and persistant volume of smoke resulting from any fire, a separate dump or depot for large quantities of S.I.P. Grenades is always preferable when circumstances permit.

Conditions of storage should be as follows:-

(1) The packages should be protected from weather, since rusting of the crown corks may cause leaks and therefore subsequent fires.

(2) Stacks should be protected from fire where possible by providing cover of non-inflammable material such as steel shelters, sandbags, or corrugated iron.

(3) Fire fighting appliances should be available and if possible the site should have an ample water supply adjacent. The liquid filling of S.I.P. Grenades is lighter than water; consequently there is a risk of spreading the fire if water is used on broken grenades. Efforts should therefore be concentrated on soaking with water, stacks adjacent to those on fire, rather than on attempting to control a burning stack. Experiments are being made to ascertain what is the most effective method of dealing with burning stacks and information will be circulated as soon as these experiments are concluded. In the meantime it is considered advisable that a foam-making appliance should be kept available where possible as this will probably prove to be the most effective method of dealing with an outbreak.

(4) Safety distances should be as shown in the following tables, the distances given being for stacks fully protected from fire. Where this is not the case the distances should be doubled. Stacks should be kept as small as is practicable.

A. For S.I.P. Grenades in bulk whether in Ammunition Depots or stored separately.

| No. of S.I.P. Grenades in Stack. | Distance from other Stacks of S.I.P. Grenades. | Distance from other types of Ammunition or from public roads, buildings etc. |
|---|---|---|
| 10,000 | 50 yards. | 350 yards. |
| 4,000 | 40 " | 250 " |
| 2,000 | 35 " | 200 " |

B. For S.I.P. Grenades in small quantities, such as those on Unit Charge.

| No. of S.I.P. Grenades in Stack. | Distance from other Stacks of S.I.P. Grenades. | Distance from other types of Ammunition or from public roads, buildings etc. |
|---|---|---|
| 1000 | 15 yards. | 50 yards. |
| 400 | 12 " | 40 " |
| 200 or less. | 10 " | 35 " |

Regarding the effects of freezing on the performance, the following information is now available.

S.I.P. Grenades will function normally if shattered at temperatures such that, although the water layer is frozen, the phosphorus containing layer is still liquid. This means that the bombs will function normally at temperatures down to -10°C.(14°F.) at least.

214. CARTRIDGES Q.F. 40 M.M.

The undermentioned method of filling designs have been approved:-

(a) For use with Mark I.T. Shell.

A nominal weight of 9-ozs.13-drs. of Cordite W.T.144-048 arranged in two bundles, one surrounding the other. The inner bundle is raised to form a primer recess in the base of the charge and a strip of foil is attached to the protruding forward end of this bundle. The means of ignition is the No.12 primer fitted with a steel adapter to adapt it to the primer hole of the case.

(b) For use with Mark II.T. Shell.

A nominal weight of 10-ozs.2-drs. of Cordite R.D.Q./S.T.099-037 arranged in two bundles, one surrounding the other. The inner bundle is made up of shorter sticks and is positioned to form a primer recess at the base of the charge and a recess at the forward end in which a folded strip of foil is contained. The means of ignition is the same as in (a) above.

The use of Primer Percussion Q.F. Cartridges No.12 with steel adapter has also been approved for use in Q.F. 40 m.m. Cartridges filled N.C.T.

215. FUZE, PERCUSSION, D.A. NO.251

To simplify the drilling of the striker guide and to effect an economy in steel balls, the modification of this fuze to provide for two balls located on a diameter as support for the needle has been approved.

216. PRIMER, PERCUSSION, Q.F. CTGE. NO.11.

The use of the No.11 primer, filled Q.F. composition, is approved for use with Q.F. 4.5 inch gun cartridges filled N.C.T.065 as an emergency measure only. Every endeavour will be made to supply No.9 primers for this equipment.

217. FUZE, TIME, NO.199

The use of a modified magazine ring in plastic material has been approved as an alternative for future filling.

218. GRENADE, RIFLE, NO.63, SMOKE.

This grenade is to be declared obsolescent. Existing stocks at home will be relegated for training purposes only.

219. MARKING OF FUZE, PERCUSSION, D.A.NO.117.C.

The No.117.C. fuze which is a conversion from the No.119 fuze was approved as a temporary expedient as the production of No.119 fuze bodies was greater than the filling factories could compete with as No.119 fuzes. The body of the fuze has the knurled band normally intended to distinguish the No.119 fuze from the No.117 fuze. To cancel the significance of the knurled band on the No.117.C. fuze, the painting of a yellow band around the body has been approved. The paint specified for this marking is of a special nature and will also serve to waterproof the centrifugal bolt hole.

As soon as the filling factories can compete with the production of No.119 fuze bodies the filling of No.117C fuzes will cease.

220. BATCH MARKING, BOMBS, M.L., 3-INCH MORTAR H.E.

Duplication in Batch Marking has occurred with the above ammunition involving batches B.571 to B.615 inclusive. The batches can be identified by the Army Form G.836 and by the label inside the box. If any question arises regarding these batches, details of fuze and ballistite lot should be reported to enable the station of assembly to be identified.

221. CARTRIDGES, M.L., 95 GRAIN BALLISTITE, MARKS VIII AND IX.

The following changes in the design of this cartridge have been introduced :-

(a) Mark VIII Cartridge (Fig. 63.)

The guncotton priming of earlier marks has been superseded by a priming of gunpowder of the G.20 grade. The gunpowder is kept separated from the ballistite by being enclosed in a thin copper tube which passes axially through the portion of the cartridge containing the ballistite. The front end of the tube is closed while the open end at the base is a close fit around the cap chamber.

(b) Mark IX Cartridge (Fig. 64.)

The copper tube separater referred to in (a) above has been superseded by a celluloid cup. The gunpowder priming is contained in the lower portion of the cartridge, immediately above the cap chamber, and is kept separated from the ballistite by a cup shaped celluloid diaphragm which is a close fit in the cartridge body.

222. CARTRIDGE M.L. 2-INCH MORTAR 55 GRAINS BALLISTITE MARKS I AND II.

The priming arrangements in the Marks I and II cartridges are similar to those in the Marks VIII and IX, respectively, of the 95 grain cartridges described in Item 221.

223. DEMOLITION EXPLOSIVES. NOBELS EXPLOSIVE NO.808.

Nobels Explosive No.808 is being supplied to the Service for blasting purposes. The following details of this explosive which have been obtained from the Chief Chemical Inspector are published for information :-

The explosive is described as a "Desensitised Gelignite" and is supplied in the form of 4-oz. cartridges of $1\frac{3}{8}$-inches diameter packed 25-lbs. to the box.

The normal composition of the explosive is :-

| | % | % |
|---|---|---|
| Straight Nitroglycerine | 61.5 | |
| Guncotton | | |
| Soluble Nitrocellulose | | |
| M.N.T. | | |
| Chalk | | |

The question of the substitution of Nitroglycol and later, Nitropolyglycol, for nitroglycerine to some extent in the explosive has been considered but it is not known whether supply action has been taken on these lines.

I.C.I. state the explosive is intended to be at least equivalent, in detonative power and sensitivity to detonation, to a gelignite with a 50% nitroglycerine content. All results of tests have been satisfactory in this respect and in detonative power it is normal to obtain figures equivalent to a blasting gelatine with a 93% nitroglycerine content (50% gelignite normally gives a figure equivalent to a 64% blasting gelatine). Thus the new explosive is much more powerful than a 50% gelignite.

Regarding care and preservation requirements in the Service, the explosive will be classed as gelignite.

224. CARTRIDGE, Q.F. 37 MM., SHOT A.P., M.51, FOR ANTI-TANK GUN M.3.

The details of this fixed Q.F. round, which is being obtained from U.S.A. for supply to the Service, are as follows :-

Weights and Dimensions.

Overall length of round 14.47 inches.
Approximate weight of complete round 3.41 lbs.
Weight of shot assembled 1.92 lbs.

225. SHOT A.P. 37 MM. M.51B1. (Fig. 65. )

The steel shot has a driving band of gilding metal and is fitted with a penetrative cap and ballistic cap. A tracer composition contained in a cavity formed in the base of the shot has a time of burning of approximately 3 seconds. The penetrative cap, which is of steel, is soldered or sweated to the shot and screwthreaded externally for the attachment of the ballistic cap. Two notches, 180 degrees apart, are also provided for the securing of the ballistic cap by indenting. There is an alternative design of shot in which the body and penetrative cap are made in one piece. The ballistic cap is a light, hollow, die-cast of aluminium alloy and is struck with a radius of 13 inches.

The tracer cavity in the base of the shot contains "Red Tracer Composition" topped with a priming of "Igniter Composition". The filling is designed to provide the usual small space at the rear end of the cavity which is closed by a celluloid cup.

Cartridge Case and Propellant Charge. (Fig. 65)

The brass case is designed to receive a push-in primer and has a sharp increase in taper towards the mouth. Attachment to the shot is effected by indenting of the mouth at four points into the groove formed in the shot. This assembly is made with a wet coating of N.R.C. compound (a red or green water-proofing compound) around the wall of the shot below the driving band.

The weight of the propellant charge is approximately 8-ozs. 3-drs. The size of the propellant is not specified since the U.S. authorities order their propellant to meet a specific ballistic requirement, the size and to a certain extent the composition of the propellant, is left to the discretion of the manufacturer. The F.N.H. powder being used consists of Nitrocellulose 77.5%, T.N.T. 16%, Triacetin 6% and Diphenylamine 1%.

Primer, Percussion, M.23. (Fig. 66).

The primer body is tapered towards the front and is further reduced in diameter near the centre. The magazine is separated from the cap chamber by a diaphragm with a central flash hole. The magazine contains 20 grains of "Army Black Powder, Grade A.4". This American Gunpowder is a graphite glazed, granular variety corresponding in grade to G.20 approximately. The mouth of the magazine is closed by a disc of onion paper covered by a layer of beeswax over which the mouth is slightly turned. The brass cap contains a pressing of 1 grain of "No.70 Primer Mixture" over which is placed a disc of shellacked foiling paper. Positioned within the cap, over the pressed mixture, is the anvil which is a saucer shaped fitting of brass with two portions cut away to provide flash channels. The brass striker is carried in a holder positioned immediately below the cap.

Markings.

1. Projectile.

(a) Stampings.

The following information relating to the shot is stamped on the cylindrical portion of the driving band :- lot number, year of manufacture, initials or symbol of manufacturer, and calibre with designation of shot.

(b) Painting.

The shot and exposed portion of caps are painted or enamelled black.

(c) Stencilling.

The stencilling, which is in white outline, is shown on Fig. 65. Lot particulars of tracer filling are stencilled below the driving band, but are not visible on the assembled round.

2. Cartridge Case.

(a) Stampings. (Fig. 65 ).

(b) Stencilling.

The stencilling, which is done by means of ink or silver nitrate is shown on the Fig. 65. . The "Ammunition Lot No." corresponds to a Batch Marking. The stencilling of "FLASHLESS", as shown in the Fig., will be eliminated.

3. Primer (Fig. 66 ).

**Packages.** (Fig.67)

20 rounds are packed in "Box, Packing, with Metal Liner for 37 mm. Gun, M3 and M5 Ammunition". This is a wooden box with hinged lid secured by hasps, with sealing wires, and steel strips. The lining, of tinned or terne plate, is closed by soldered lid provided with a tear-off loop. Plywood packing pieces are included to position the rounds.

The dimensions of the box are $17\frac{1}{8}$ x 12.15/16 x 17.23/32 inches and the estimated weights are 31.5-lbs. (empty) and 100-lbs. (filled).

The box will be painted service green and stencilled in black in accordance with the U.S.A. practice as shown on the Fig. where the information indicated by the letters is as follows :-

A. Stamp of the examiner of the packed contents.
B. Gross weight.
C. Number of shipping ticket.
D. Ammunition Lot No.
E. U.S. Ordnance insignia.
F. Nature of projectile.
G. Month and Year packed.
H. 3-inch light blue band with end cleats of the same colour denotes practice ammunition.

The "Box, Packing, with Metal Liner for Primers M.23 and M.25" is used for the primers and takes 2000 primers packed in cartons. The box is of wood with the lid secured by screws and has a terne or tinned plate lining, with soldered tear-off lid. The dimensions of the box are 20.7/16 x 16.1/16 x $7\frac{3}{4}$ inches and the weights are 17.25-lbs. (empty) and 128.45-lbs. (filled). The cartons are of newsboard with felt paper packing pieces and are partitioned to receive 50 primers. The carton is dipped in paraffin wax and its dimensions are 7 x 3.9/16 x 1.29/64 inches.

226. BOMB, INCENDIARY $1\frac{1}{4}$-LB. MARK I. (Fig.68)

The empty bomb consists of a cylindrical tinned-plate body which has a neck screw threaded externally, bakelite adapter and safety cover, zinc alloy cap chamber, tinned-plate cup securing cap chamber and rubber washer.

The filled bomb consists of the body filled with incendiary composition and an ignition system which comprises an igniter unit and fuze assembly.

The fuze assembly consists of a rim fire cap secured to a length of safety fuze, which should give a delay of approximately 5 seconds.

The cap chamber is passed over the safety fuze on to the sleeve of the rim fire cap. A length of copper tube is positioned over the fuze and secured by canneluring.

The igniter unit consists of igniter composition housed in a tin cup. On top of igniter composition is a primed cambric disc and a paper sleeve.

To assemble the whole ignition system, the fuze assembly is inserted through the bakelite adapter and the free end of the fuze tube is secured to the paper sleeve in igniter unit.

The cap chamber of the ignition system is secured in position by screwing the cup securing cap chamber onto the adapter

The adapter with complete ignition system is screwed on to neck of bomb body, the igniter unit positioning itself in the paper cup in body.

The safety cover is screwed down to the rubber washer, housed in adapter recess, thus forming a seal. A patch of adhesive tape is affixed to the adapter and safety cover, this prevents removal of safety cover during transit.

Preparation for use.

Remove adhesive tape patch and safety cover, the bomb is then ready for use.

To Fire.

Place the bomb on its base in required position, strike the cap on a hard surface. The bomb is not to be touched after firing cap. Instructions for use are printed on body of bomb.

Packing.

The bombs are packed into a steel box, 24 bombs per box.

The box adopted is P59 Mark II, millboard packing pieces being used, one piece on bottom and one piece each side of the box, surplus space being packed up with suitable packing material. The box is painted red, the dimensions of which are 19.15 x 8.35 x 7.85 inch and the filled weight 46-lbs.

227. BOMBS, M.L. SIGNAL 2-INCH MORTAR:-

Single Star Red Mark I.
Single Star Green Mark I.
Multi Star Red Mark I.
Multi Star Green Mark I.
Multi Star Red and Green Mark I.

Each type of empty bomb consists of a cylindrical body, tinned-plate lid, aluminium or zinc base delay holder, adapter, and tail unit.

Single Star Red or Single Star Green.

The filling of the star unit, delay holder and complete assembly for the above types of bombs are depicted in Fig. 69 (typical). The star case is of rocket paper and has a tin-zinc alloy cup supporting, secured in one end. After filling the star case is closed by millboard disc and secured by a paper strip.

Multi-Star Red or Multi-Star Green.

The filling of the star unit, delay holder and complete assembly for the above types of bomb are depicted in Fig. 70 (typical). The star container is of rocket paper, closed at one end by a tinned-plate diaphragm having a central hole. The star cases are of paper, grey, hard, wrapping, and after filling, the cases are closed by a millboard disc and secured by a paper strip.

The 9 stars, red or green, as ordered, are placed in the star container in 3 tiers, a millboard spider is placed between the tiers and the surrounding space filled with gunpowder. The star container is closed by millboard discs.

Multi-Star Red and Green.

The filling of the star unit, delay holder and complete assembly is depicted in Fig.71.

The filled star container and make up of stars are similar to the Multi-Star Red or Green, except that stars of two colours are used and assembled in the order shown in Fig.71.

For all types the method of assembly of the delay holder, adapter, closing discs and tail unit with cartridge, are similar to the bomb, M.L. Illuminating, with Parachute, 2-inch Mortar, Mark I, item 229 below. Bombs, all types, when fired at an angle of 85° should rise to a height of not less than 600 ft., and burst at the top of their trajectory. The time of delay from ejection of a bomb, to ignition of star (or stars) is between 3.25 and 4.5 seconds.

The times of burning for star or stars are as follows:-

| | |
|---|---|
| Single Star Red<br>" " Green<br>Multi-Star Red & Green | not less than 13 secs. |
| Multi-Star Red<br>Multi-Star Green | not less than 8 secs. |

Particulars of packages and weights have been included in Ammunition Bulletin No.14, Item 149.

228. BOMB M.L. SMOKE. 2 INCH MORTAR, MK.II.

The empty bomb consists of a cylindrical steel body with nose cap, tinned-plate cup, steel adapter and an aluminium tail unit.

The filling of the bomb is depicted in Fig.72. Fitted into the tail unit is a ballistite cartridge which is secured in position by the cap retaining cartridge. The body of the tail unit has eighteen holes and six vanes, and is screwed on to the adapter and finally secured by a grub screw. Threads of the tail and stem of the adapter are coated with approved cement, before assembly of tail unit and cap retaining cartridge. The bomb has a range of between 300 to 400 yards and the time of delay from ejection of the bomb to emission of smoke is between 3 and 8 seconds.

The time of emission of smoke cloud is 75 seconds. On firing, ignition of the cartridge fuzes the closing disc housed in the adapter recess, and the flash passes on to the primed cambric discs, igniting the gunpowder pellet and the delay unit. Particulars of packages and weights have been included in Ammunition Bulletin No.4, Item 26.

229. BOMBS, M.L. ILLUMINATING, WITH PARACHUTE. 2 INCH MORTAR, MARK I.

The empty bomb consists of a cylindrical steel body, tinned-plate lid, aluminium delay holder, adapter, an aluminium or zinc base alloy tail unit and rocket paper star case with tinned-plate end.

The filling of the star unit, delay holder, attachment of star to parachute and complete assembly of the bomb is depicted in Fig.73.

The delay holder assembly is inserted in the body so that the flange seats on to the radiused shoulder of the body and is secured by screwing on the adapter to the threaded part of the delay holder.

The faces of the delay holder and adapter which are in contact with the body are coated with approved cement. Before assembly the threads of the delay holder are coated with approved cement.

The copper wire attached to the wood plug at top of the star is secured to the parachute cords by means of a reef knot, thus securing the parachute to the star. The star unit is positioned in the bomb body and after coiling the copper wire a slotted millboard disc is placed on top of the star, the wire passing through the slot in the disc.

A brown paper tube, in two halves and the folded parachute is packed into the bomb body. Millboard discs as required are inserted to make a firm package and the body is closed by securing the lid with approved cement. Closing discs are positioned in the 4 recesses in the adapter and secured with approved cement, thus sealing 4 holes in the adapter.

Assembly of the cartridge and tail unit to the adapter is similar to the Bomb, M.L. Smoke, 2 inch Mortar. On firing, ignition of the cartridge fuzes the four closing discs and the flash passes on to the primed cotton cambric sleeve, delay unit, bursting charge and the primed cotton cambric disc in the bottom of star.

Ignition of the bursting charge ignites the star and ejects the star unit from the body of the bomb.

Bombs when fired at an angle of 85° should rise to a height of not less than 500 feet and the delay from ejection of bomb to time of burst is between 3.5 and 5 seconds. The parachute opens up at extreme height of trajectory, and the suspended star should burn between 25 and 35 seconds.

Particulars of packages and weights have been included in Ammunition Bulletin No.14 Item 149.

230. BOMB, SMOKE, 2-INCH BOMB THROWER, MARK I.

The empty bomb consists of a cylindrical steel body with nose cap, steel adapter and an aluminium or zinc base alloy tail unit.

Secured to the nose cap is a tinned-plate lifting strap, having a hole for insertion of a suitable lifting device for removal of the bomb from the weapon if the bomb is not fired.

The filling of the bomb is depicted in Fig. 74 . Assembly of the cartridge and tail unit to the adapter is similar to the Bomb, M.L. Smoke 2-inch Mortar, Item 228. The bomb is used in A.F.V.'s and ranges for about 150 yards. The time of emission of smoke clouds is 75 seconds when filled with S.R.269 and 150 seconds when filled with P.N.303.

Particulars of packages and weights have been included in Ammunition Bulletin No.14 Item 149. Amendment to particulars of cartridge given in Ammunition Bulletin No.14, Item 149 consequent upon adoption of a new cartridge, was made in Item 185.

231. GENERATORS SMOKE NO.8 MARKS II AND III - USE OF PROPELLANT CHARGE TO BE DISCONTINUED.

Generators of the above Marks, which are of stronger construction than the Mark I are to be used with Cartridge, S.A., Rifle Grenade, .303-inch, H, Mark I.Z without the addition of the propelling charge used with the Cartridge E Mark I.T.

The Cartridge, S.A. Rifle Grenade, .303-inch, H, Mark I.Z, which contains 30 grains of ballistite and has the front half of the case blackened for identification purposes gives a range of 170 to 200 yards with the Marks II and III generators as compared with the 80 to 100 yards obtained by the use of the Cartridge, E, Mark I.T, and propelling charge with the Mark I generator.

232. STORAGE OF 3" U.P. AMMUNITION.

With further reference to Item 193 of Bulletin No.17 as the propellant unit of this ammunition comprises an electrical firing device it is most important that stocks, whether in store, dump, or "ready-use" sites, should be isolated from wireless transmitting apparatus in accordance with the instructions contained in para.49 Magazine Regulations, Part I, 1934.

233. EXPLODERS FOR 6-INCH M.L. MORTAR.

Reference Bulletin No.17, Item 198. Details of the Mark VII exploder are shown in Fig. 75.

234. BOX, CHARGES, P.E., M.92, MARK I.

This package consisting of a steel box with millboard packing pieces and four packing trays has been approved for the packing of eighty 4-oz. charges of Plastic Explosive. The box is painted service colour and has the following stowage dimensions :-

15.65 x 6.65 x 10.25 inches.
Estimated filled weight 37¾-lbs.

235. CARTRIDGES, Q.F. 3-INCH HOWITZER.

The following method of filling designs for the propellant charge of this fixed Q.F. ammunition have been approved:-

(a) For H.E. Shell (13-lbs. 4-ozs.)

(i) 910 grains of Cordite W.016 arranged in a bundle and enclosed in a cambric bag. The disc forming the base of the bag is of larger diameter than the bag and the margin of the material thus provided is secured to the base of the interior of the case by means of shellac.

(ii) 900 grains of cordite W.T.154-136 arranged in two bundles, one surrounding the other. The inner bundle is positioned to form a primer recess at the base of the charge.

(b) For Fuzeless Smoke Shell (6-lbs. 14-ozs.)

(i) 500 grains of Cordite W.016 arranged and secured similarly to (a), (i) above.

With each of the designs the primer No.1 Mark II is used.

Packing.

Box C.174 is being used for H.E. rounds. This box which holds 2 rounds is of wood with stowage dimensions of 26.25 x 12.25 x 7.5 inches and has a filled weight of approximately 54-lbs.

Box C.224 is used for Smoke rounds. This box which holds 12 rounds is of steel with stowage dimensions of 24.7 x 15.25 x 10.125 inches and has a filled weight of approximately 144-lbs.

236. CARTRIDGE, B.L. 5.5-IN. GUN, N.C.T.025 AND 047.

The adoption of the following nominal charge weights of N.C.T. for the B.L. 5.5-in. gun has been approved :-

Charge 1 - 3-lbs. 1-oz. N.C.T.025.
Charge 2 - 5-lbs. N.C.T.025.
Charge 3 - 7-lbs. 13-ozs. N.C.T.047.
Charge 4 - 10-lbs. 14-ozs. 8-drs. N.C.T.047.

237. CARTRIDGE, Q.F. 3.7-IN. GUN N.C.T.050.

The adoption of a charge of 8-lbs. 9-ozs. 8-drs. of N.C.T.050 with primer No.11 has been approved for this gun.

238. SHOT, ARMOURED PIERCING AND SEMI-ARMOURED PIERCING.

S.A.P. shot has recently been introduced into the Service and the following is published for information :-

In the case of shell, an A.P. shell is a shell to which everything is subordinate to its piercing qualities and the bursting charge is as much as can be used with this proviso. S.A.P. shell on the other hand is a shell with a much lower piercing performance and higher charge ratio and therefore although it will not attack armour as heavy as will A.P. shell, its explosive effect is far greater.

A.P. and S.A.P. shot follow on these lines:- A.P. shot has the highest possible piercing performance which is obtainable under present manufacture and is made of a high grade alloy steel with complicated series of heat treatments. S.A.P. shot on the other hand is made of ordinary medium carbon shell steel which is readily obtainable and thus only needs a rudimentary heat treatment. The performance of S.A.P. shot is at least 50% below that of A.P. shot but is quite satisfactory against light armour and at the same time it is easy and cheap to produce.

A.P. shot is painted black and has a white tip on the nose followed by a white ring. When the shot carries a filled tracer the space between the white ring and the tip is filled by a red ring.

S.A.P. shot is also painted black and has a white tip only, beneath which a red ring will be painted if it carries a filled tracer.

239. PROPELLANTS. SENTENCING OF NITROCELLULOSE POWDER IN AMERICAN 75 M.M. AMMUNITION.

The following table of sentences has been approved.

| Heat Test | Sentence | |
|---|---|---|
| | Abroad | Home |
| 5' and under. | Destroy | Destroy. |
| 8' - 5' | Destroy | ↑ 6 months. |
| 20' - 8' | ↑ 6 months. | ↑ 1 year. |
| over 20' | ↑ 1 year. | ↑ 1 year. |

Destruction of low heat test lots will be put in hand forthwith, the lowest test lots being dealt with first, as far as is practicable.

240. FUZES.

The table of fuzes approved for various natures of shell published in Bulletin No.16, Item 175, is hereby cancelled. A new table will be included in the next Bulletin.

ENEMY AMMUNITION.

241. AMMUNITION, SMALL ARM, ITALIAN:-

12.7 m.m. Incendiary Tracer.
12.7 m.m. A.P. Incendiary, Tracer.
7.7 m.m. A.P. Incendiary, Blue Tipped.
7.7 m.m. A.P. Incendiary, Green Tipped.

The following details of Italian small arms ammunition are published for information:-

12.7 m.m. Incendiary Tracer (Fig. 76 )

The cartridge case is of brass and of the semi-rimless type. The boat tailed bullet consists of a steel body (a) heavily coated on the exterior with gilding metal (b) and with a tracer cavity (c) formed in the base. The tracer composition gives a white trace up to a distance of approximately 150 yards, the trace then changes to red. The incendiary filling (d) consists of aluminium and potassium chlorate with a small layer of penthrite/wax on top (e). Situated above the incendiary filling is the initiator arrangement, details of which are not yet available. The brass fuze is similar in action to the German A.Z.5045 although the centrifugal segments with the spring coil are housed in the bottom half, instead of in the nose cap and the striker incorporates the hammer. The body of the bullet is painted blue.

12.7 m.m. A.P., Incendiary Tracer (Fig. 77 )

The cartridge case is of brass of the semi-rimless type. The boat tailed bullet consists of a cupro-nickel envelope (a), copper sleeve, also forming the nose of the bullet (b), steel core (c) with lead band (d) pressed around its base into cannelures, a lead base plug (e) and tracer tube (f), transparent closing disc (g) and brass washer (h), and split steel support piece (j) in the nose which possibly acts as a forming anvil. The nose (of the copper sleeve) is filled with three compositions, first in the tip and intimately pressed into the split anvil, a mixture of aluminium and lead oxide. Next a mixture of magnesium, potassium chlorate and antimony sulphide and around the nose of the core, reaching back to the lead band at the base of the core, a mixture of aluminium, magnesium and lead oxide. The central composition is apparently intended to act as an igniter for the other two incendiary compositions. The tracer composition gives a bright red trace. The tip of the bullet is painted white to the joint with the cupro-nickel envelope.

7.7 m.m. A.P., Incendiary, Blue Tipped (Fig. 78 )

In general appearance this round is similar to the normal British .303-inch type. The nose of the bullet envelope has four holes and 0.5 inch of the tip is painted blue. The brass cartridge case is fitted with a copper cap. The cap is not ringed in.

The bullet consists of an envelope, (a) of steel, coated with cupro-nickel (S.M.1) or cupro-nickel (B.P.D.), a copper sleeve (b) and a steel core (c) in a lead sheath (d). The nose portion of the copper sleeve is filled phosphorus and the envelope is pierced with 4 holes on the ogive so that at these points the phosphorus is protected only by a copper sleeve. This presumably permits collapse and distribution of the phosphorus on impact with a sufficiently rigid material. The methods of closing the base of the bullet vary, but a typical example is shown. In each method there is a solder seal.

| Base Markings :- | B.P.D. | S.M.1. |
|---|---|---|
| | 37 | 936 |

7.7 m.m. A.P., Incendiary, Green Tipped (Fig. 79 )

In general appearance this round is similar to the normal British .303-inch type. The nose of the bullet envelope has 4 holes and 0.5-inch of the tip painted green. The brass cartridge case is fitted with a copper cap. The cap is not ringed in.

The make up of the bullet is almost identical with that of the blue tipped bullet described above, but the nose of the copper sheath is filled with two compositions. In the tip is a small quantity of magnesium and potassium chlorate. Behind this and surrounding the nose of the core is aluminium and lead oxide. Presumably the first mixture acts as an igniter to the thermite type of composition behind it.

Base Markings :- B.P.D.
39

242. PICKET FLARE, GERMAN. (Fig. 80)

The flare, which is probably an army store, is 25.5-inches long, 1½-inches in diameter and weighs approximately 2½-lbs. The body is a zinc tube fitted at the lower end with wooden spike. The tube is filled with 850 grams. (1-lb.14-ozs) of flare composition, primed at the upper end with 37 grams. (1.35-oz.) of loosely stemmed priming. Partly embedded in the priming composition is a blob of match head composition, the lower part of which is covered with a priming paste. The match head is protected by several discs of crepe paper. Above these is a loose millboard washer half covered with striker paste. The tube is closed by a zinc cap secured with adhesive tape. The flare is ignited by means of the loose millboard washer and the match head and burns with a white flame.

Time of burning 5 mins. 35 secs.
Rate of burning 17 secs. per inch.
Intensity, candle power - 3200 falling to 850; average 1300.
Efficiency - 580 candle secs. per gram.

243. AMENDMENTS.

Bulletin No.14. Item 149.
Column 4.
after "Ballistite"
insert "(when fitted with aluminium tail)
55 grain Ballistite.
(when fitted with zinc alloy tail)"

Bulletin No.17, Item 194, line 12 :-
delete "4 grams" and substitute "61.7 grains"

Bulletin No.17, Page 15 :-
delete "Gaine No.12" and substitute "Gaine No.13"

Bulletin No.17, Item 195 :-
delete last 4 lines and substitute :-
"On firing, the striker sets back, breaking the shearing wire. On impact the striker overcomes the creep spring and pierces the detonator thus initiating the detonation of the bursting charge."

FIG. 63.

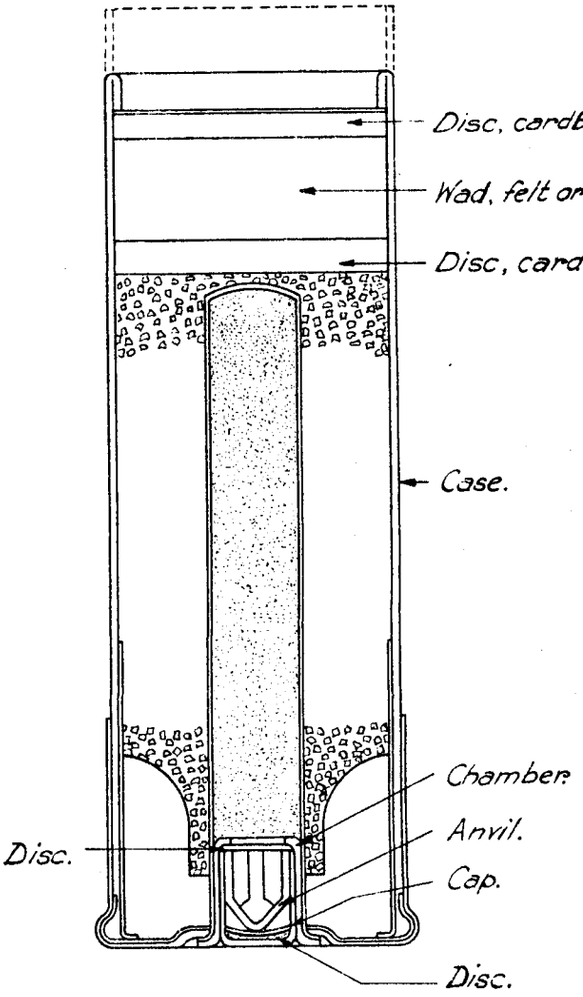

Disc, cardboard.
Wad, felt or feltine.
Disc, cardboard.
Case.
Chamber
Anvil.
Disc.
Cap.
Disc.

FIG. 64.

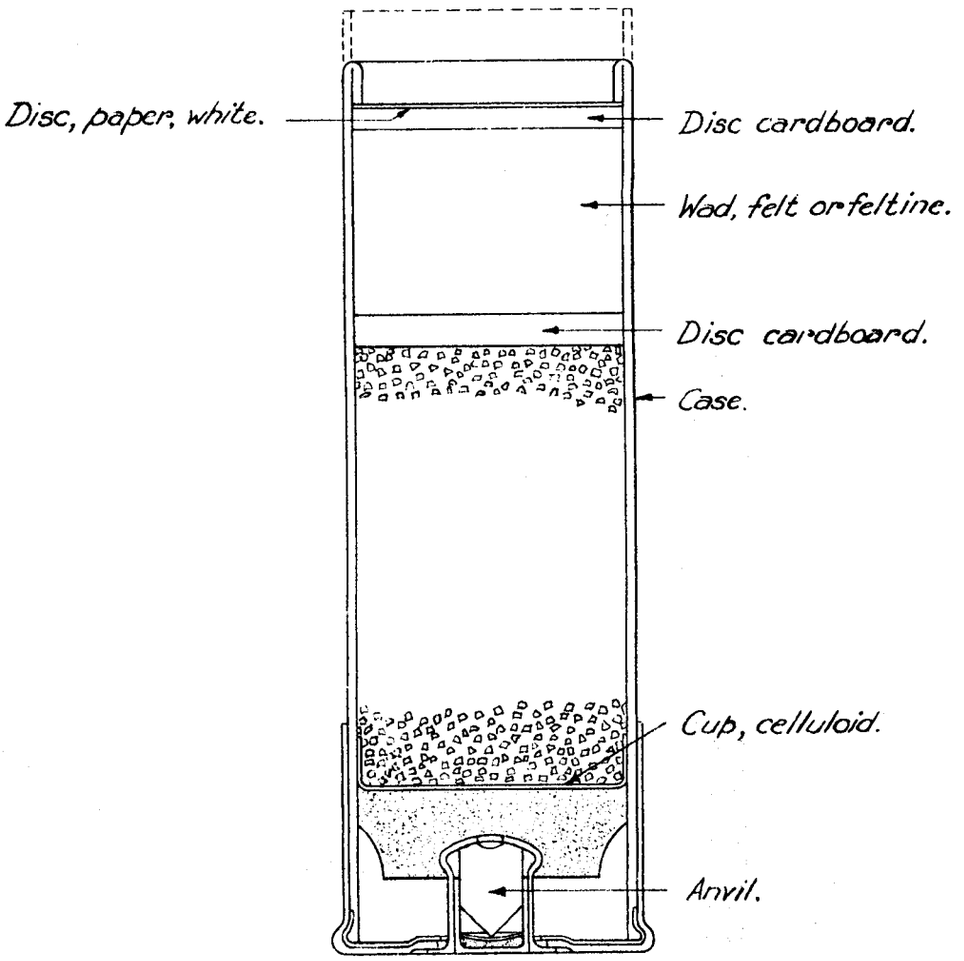
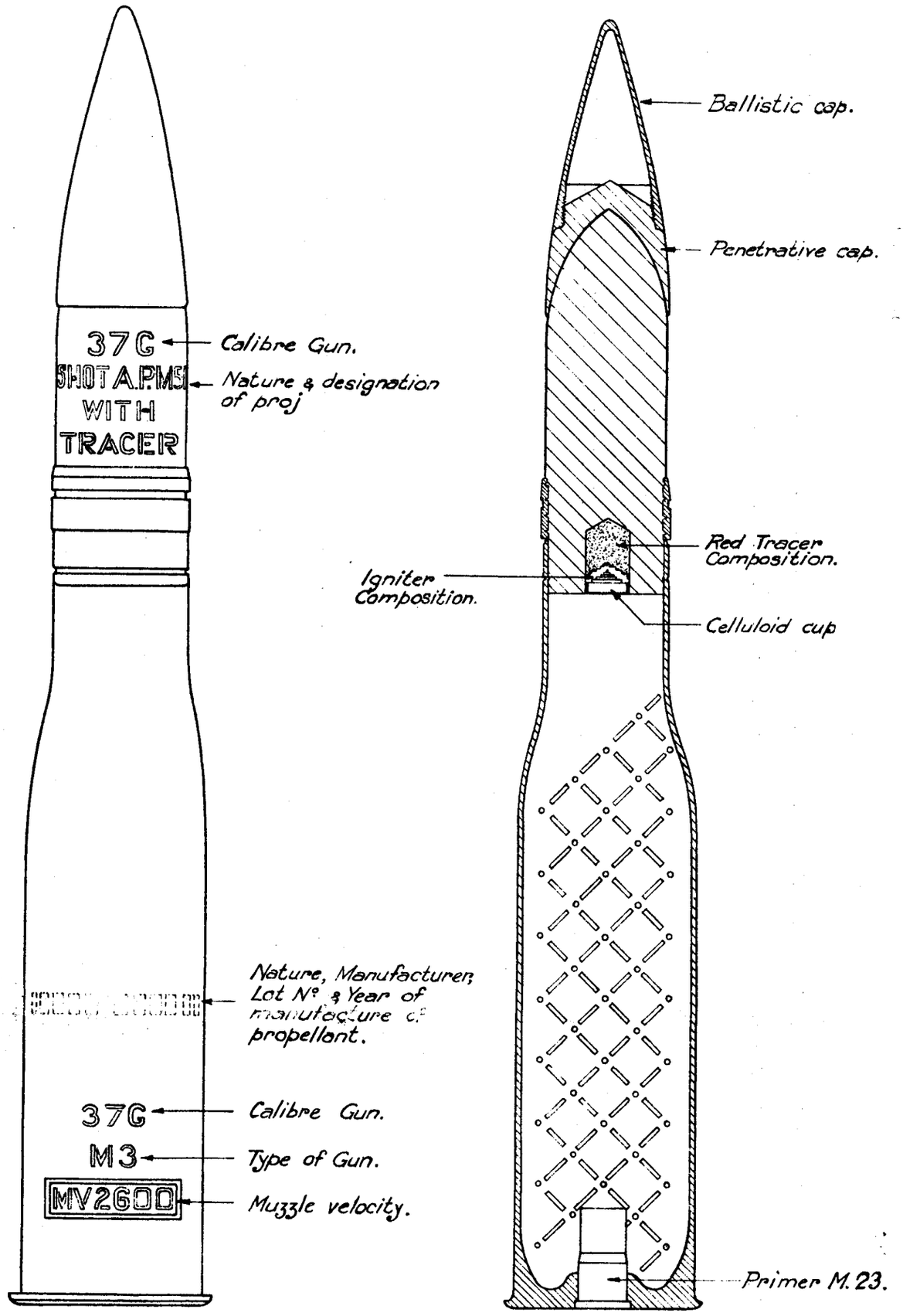
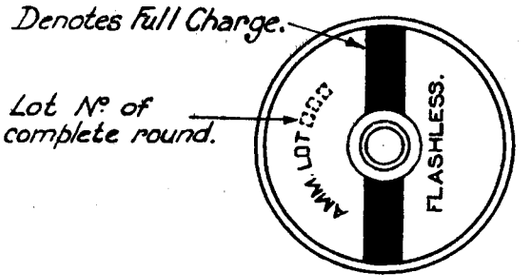

Disc, paper, white.
Disc cardboard.
Wad, felt or feltine.
Disc cardboard.
Case.
Cup, celluloid.
Anvil.

FIG. 65.




STENCILLING.




STAMPINGS.

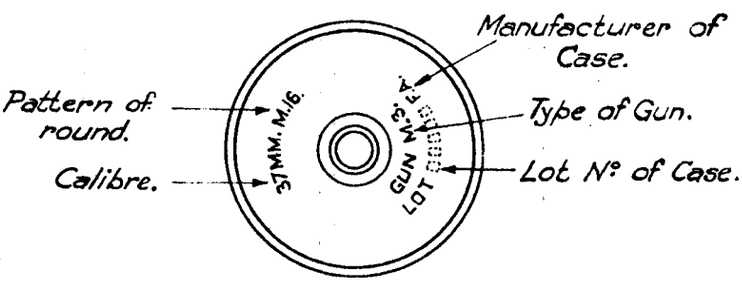
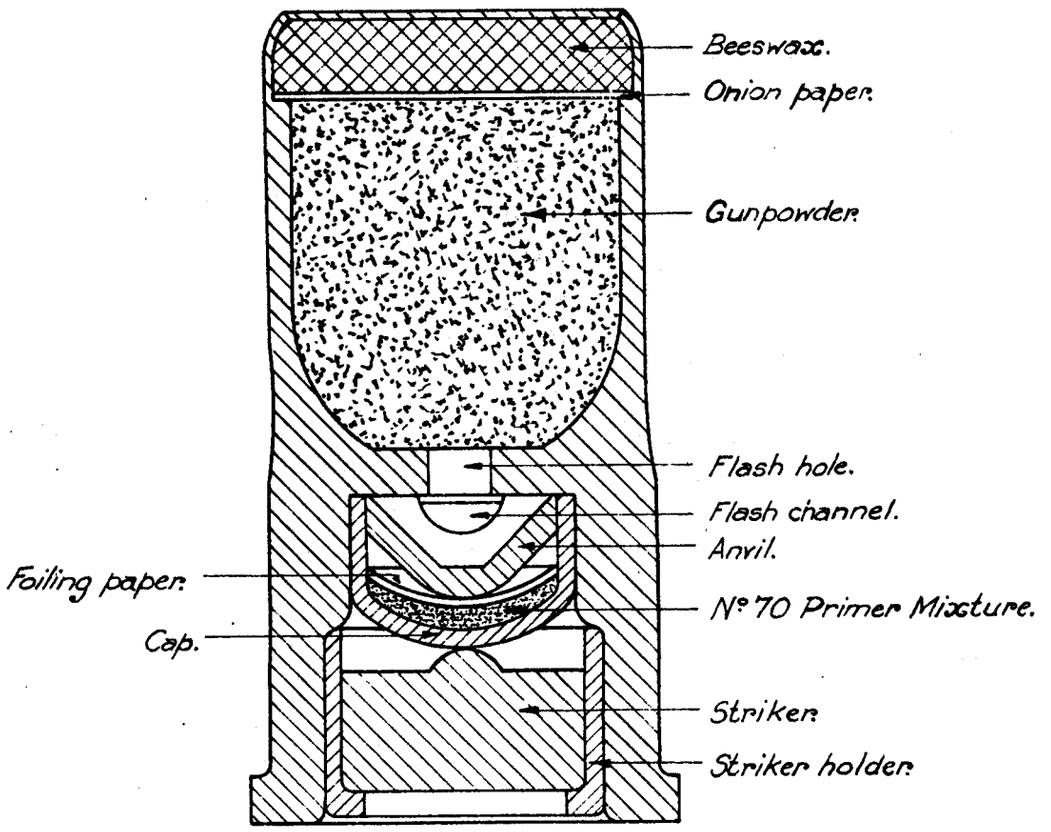


FIG. 66.


Beeswax.
Onion paper.
Gunpowder.
Flash hole.
Flash channel.
Anvil.
Foiling paper.
No 70 Primer Mixture.
Cap.
Striker.
Striker holder.

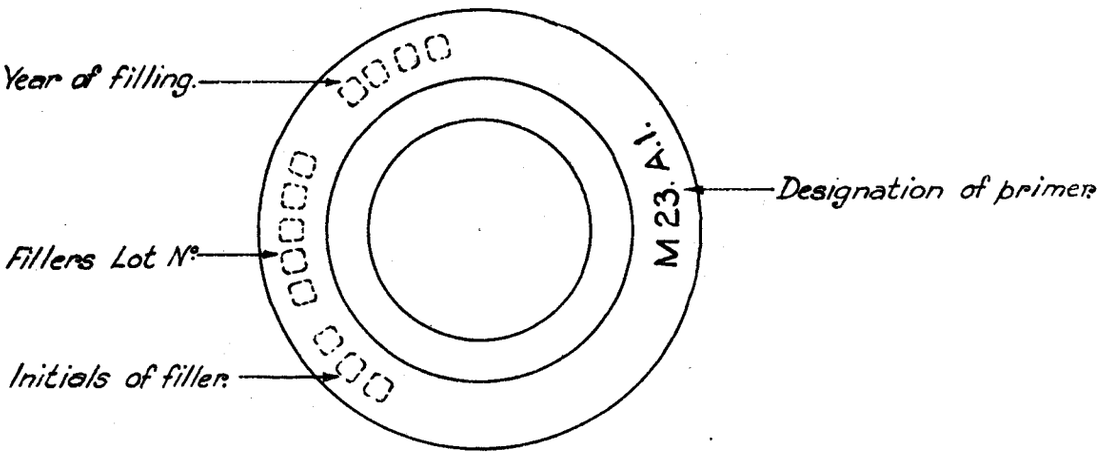
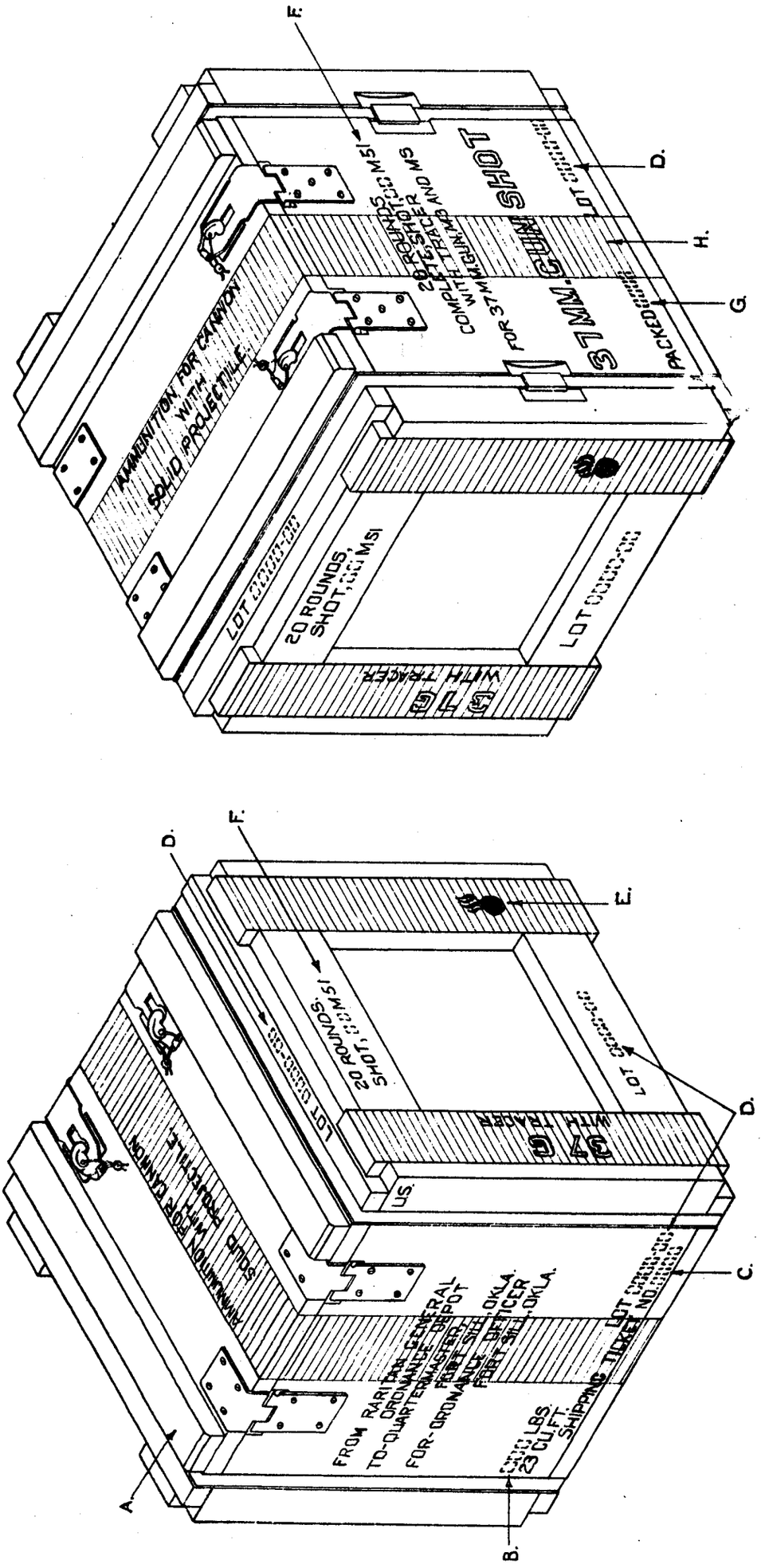

Year of filling.
0000
M 23. A.I.
Designation of primer.
Fillers Lot No.
00000
Initials of filler.
000

FIG. 67.


F.
D.
H.
G.
AMMUNITION FOR CANNON WITH SOLID PROJECTILE
20 ROUNDS SHOT, 75MM M51
LOT
PACKED
WITH TRACER
M72
LOT
20 ROUNDS SHOT, 75MM M51
LOT
E.
D.
C.
A.
B.
US
M72 WITH TRACER
AMMUNITION FOR CANNON SOLID PROJECTILE
FROM RARITAN ARSENAL
ORDNANCE DEPOT
TO-QUARTERMASTER
FOR-ORDNANCE
FORT SILL, OKLA.
FORT SILL, OKLA.
230 LBS
2 CU FT
SHIPPING TICKET NO.
LOT

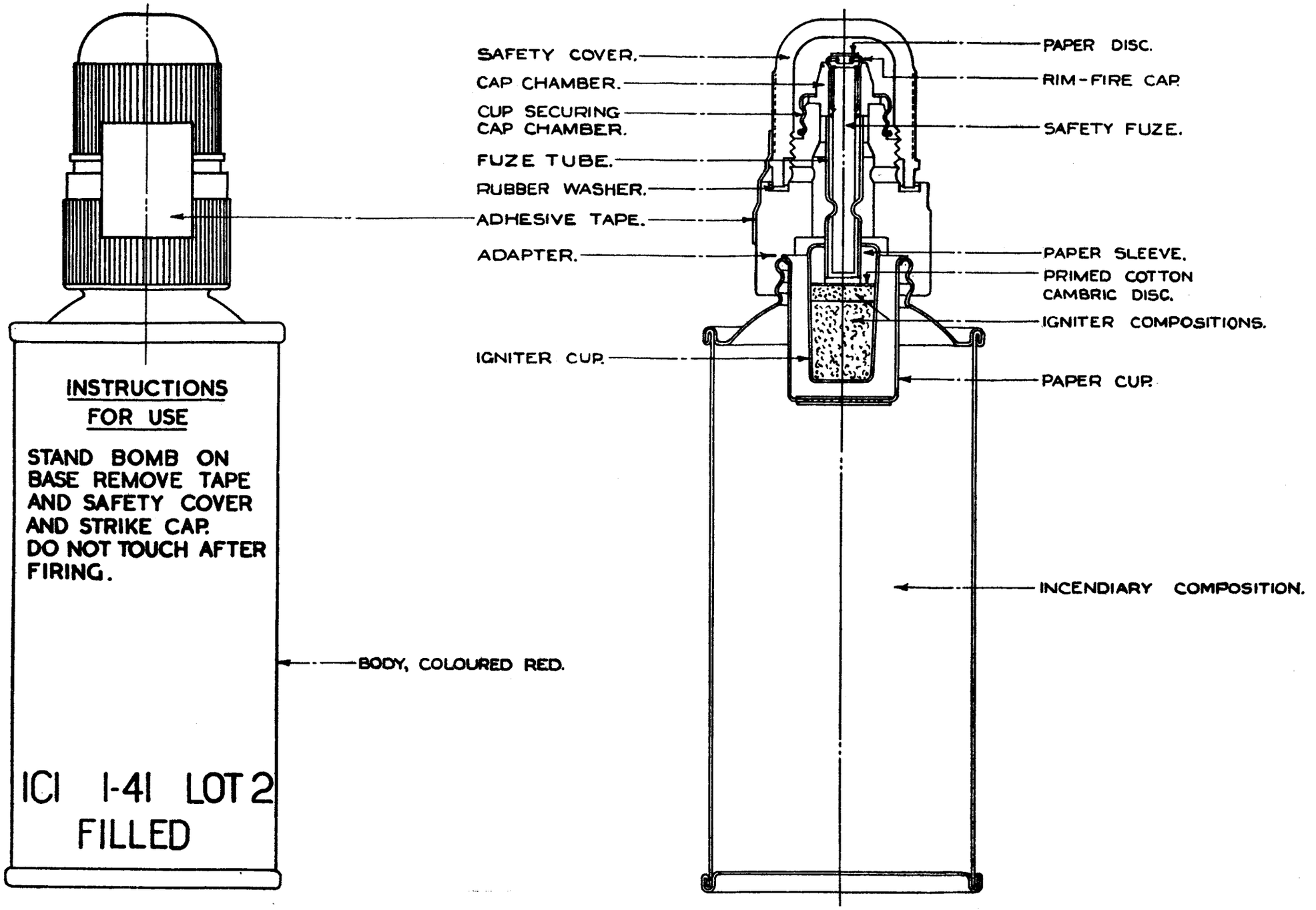
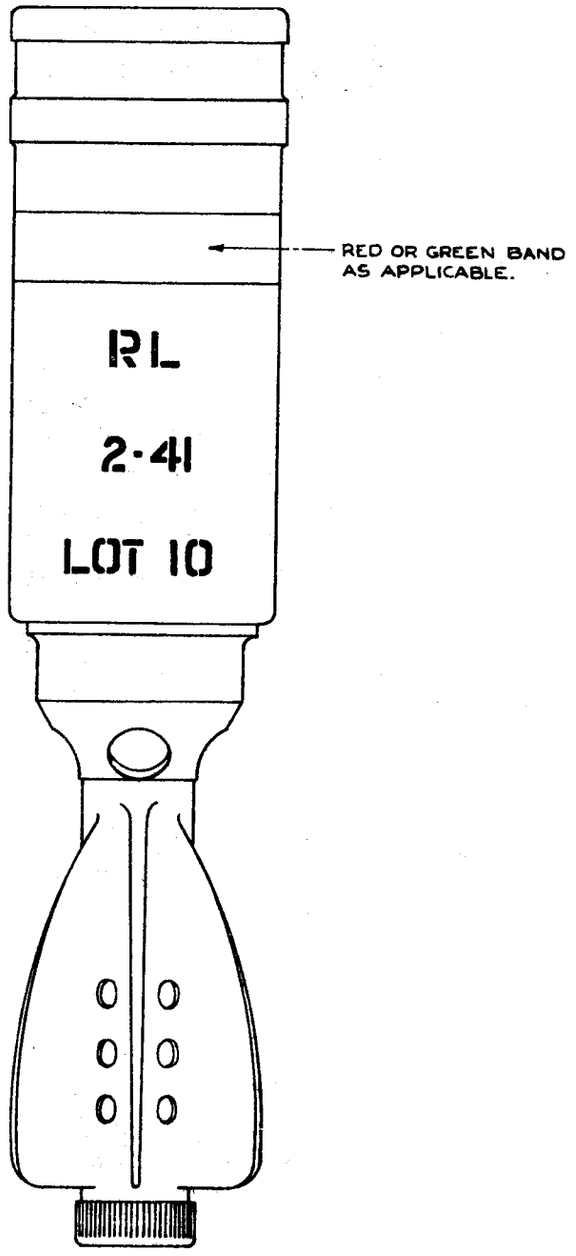

INSTRUCTIONS
FOR USE
STAND BOMB ON BASE REMOVE TAPE AND SAFETY COVER AND STRIKE CAP. DO NOT TOUCH AFTER FIRING.
ICI 1-41 LOT 2
FILLED
BODY, COLOURED RED.
ADHESIVE TAPE.
SAFETY COVER.
CAP CHAMBER.
CUP SECURING CAP CHAMBER.
FUZE TUBE.
RUBBER WASHER.
ADAPTER.
IGNITER CUP.
PAPER DISC.
RIM-FIRE CAP.
SAFETY FUZE.
PAPER SLEEVE.
PRIMED COTTON CAMBRIC DISC.
IGNITER COMPOSITIONS.
PAPER CUP.
INCENDIARY COMPOSITION.

FIG. 68.


RED OR GREEN BAND AS APPLICABLE.
RL
2·41
LOT 10

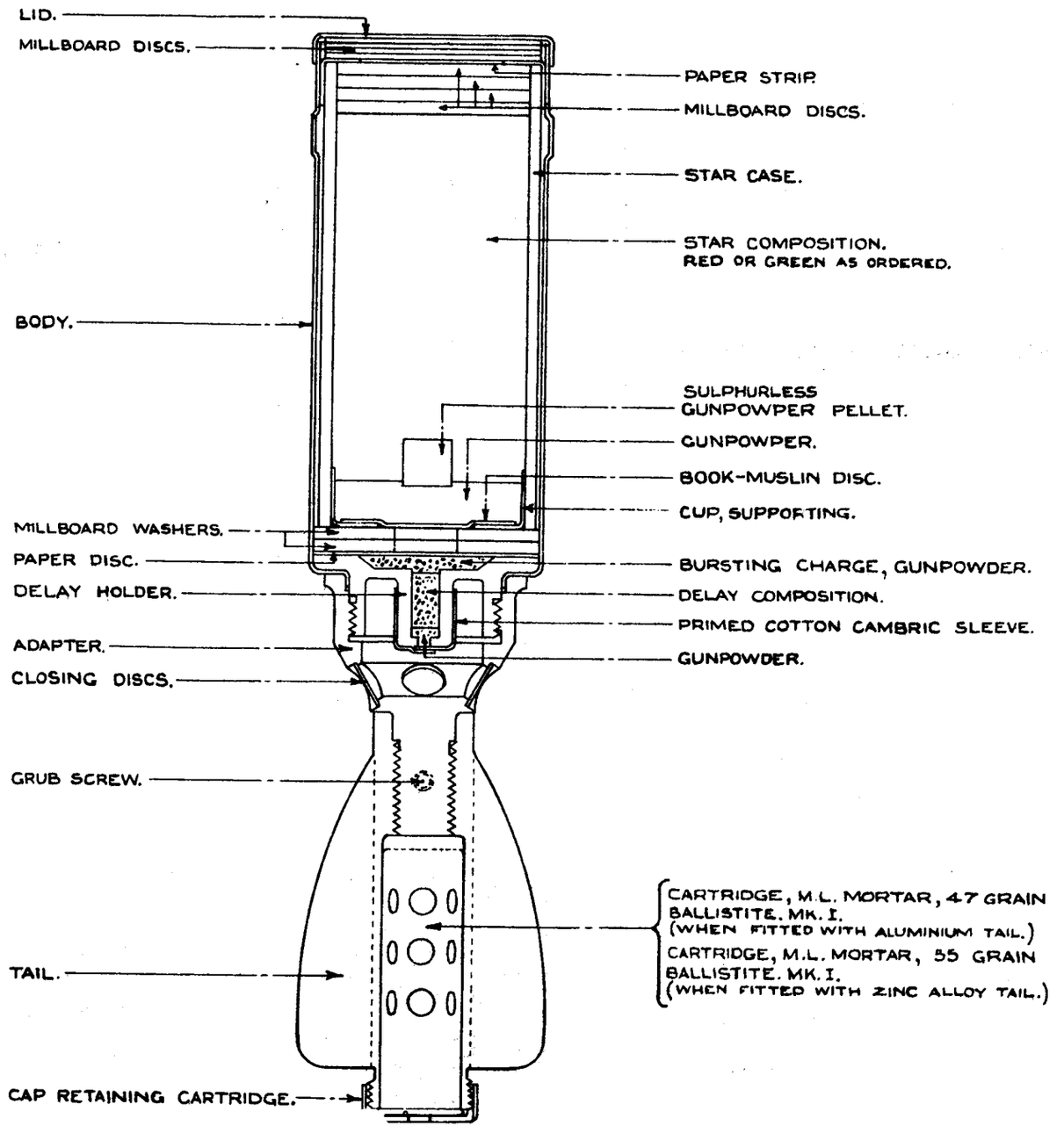
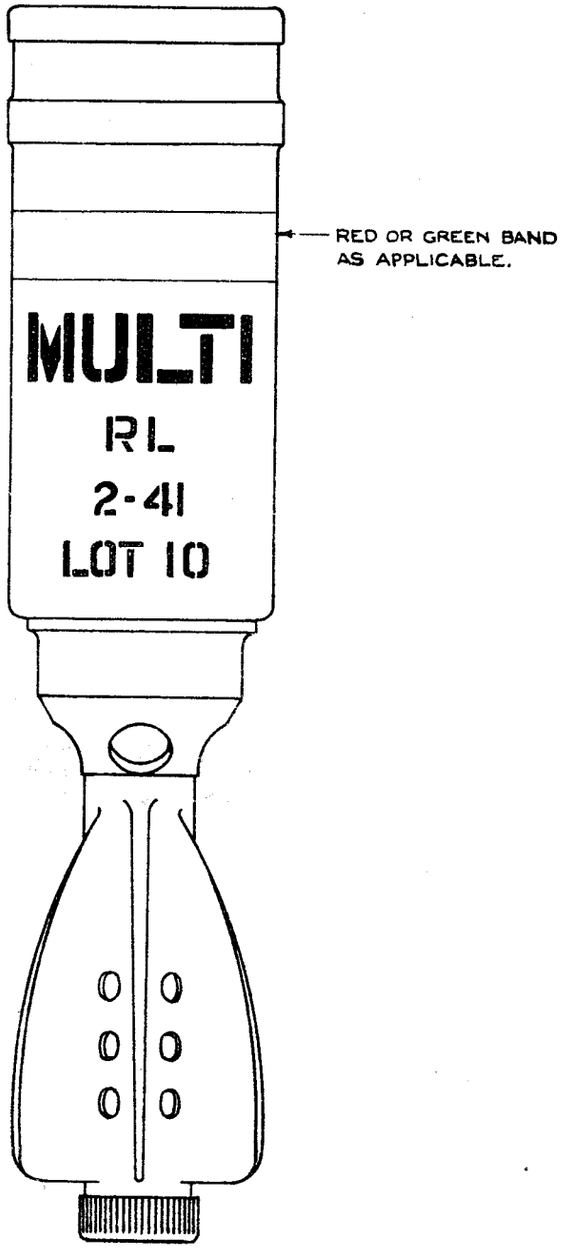

LID.
MILLBOARD DISCS.
PAPER STRIP.
MILLBOARD DISCS.
STAR CASE.
STAR COMPOSITION. RED OR GREEN AS ORDERED.
BODY.
SULPHURLESS GUNPOWPER PELLET.
GUNPOWPER.
BOOK-MUSLIN DISC.
CUP, SUPPORTING.
MILLBOARD WASHERS.
PAPER DISC.
BURSTING CHARGE, GUNPOWDER.
DELAY HOLDER.
DELAY COMPOSITION.
PRIMED COTTON CAMBRIC SLEEVE.
ADAPTER.
GUNPOWDER.
CLOSING DISCS.
GRUB SCREW.
CARTRIDGE, M.L. MORTAR, 47 GRAIN BALLISTITE. MK. I. (WHEN FITTED WITH ALUMINIUM TAIL.)
CARTRIDGE, M.L. MORTAR, 55 GRAIN BALLISTITE. MK. I. (WHEN FITTED WITH ZINC ALLOY TAIL.)
TAIL.
CAP RETAINING CARTRIDGE.

FIG. 69.


RED OR GREEN BAND AS APPLICABLE.
MULTI
RL
2-41
LOT 10

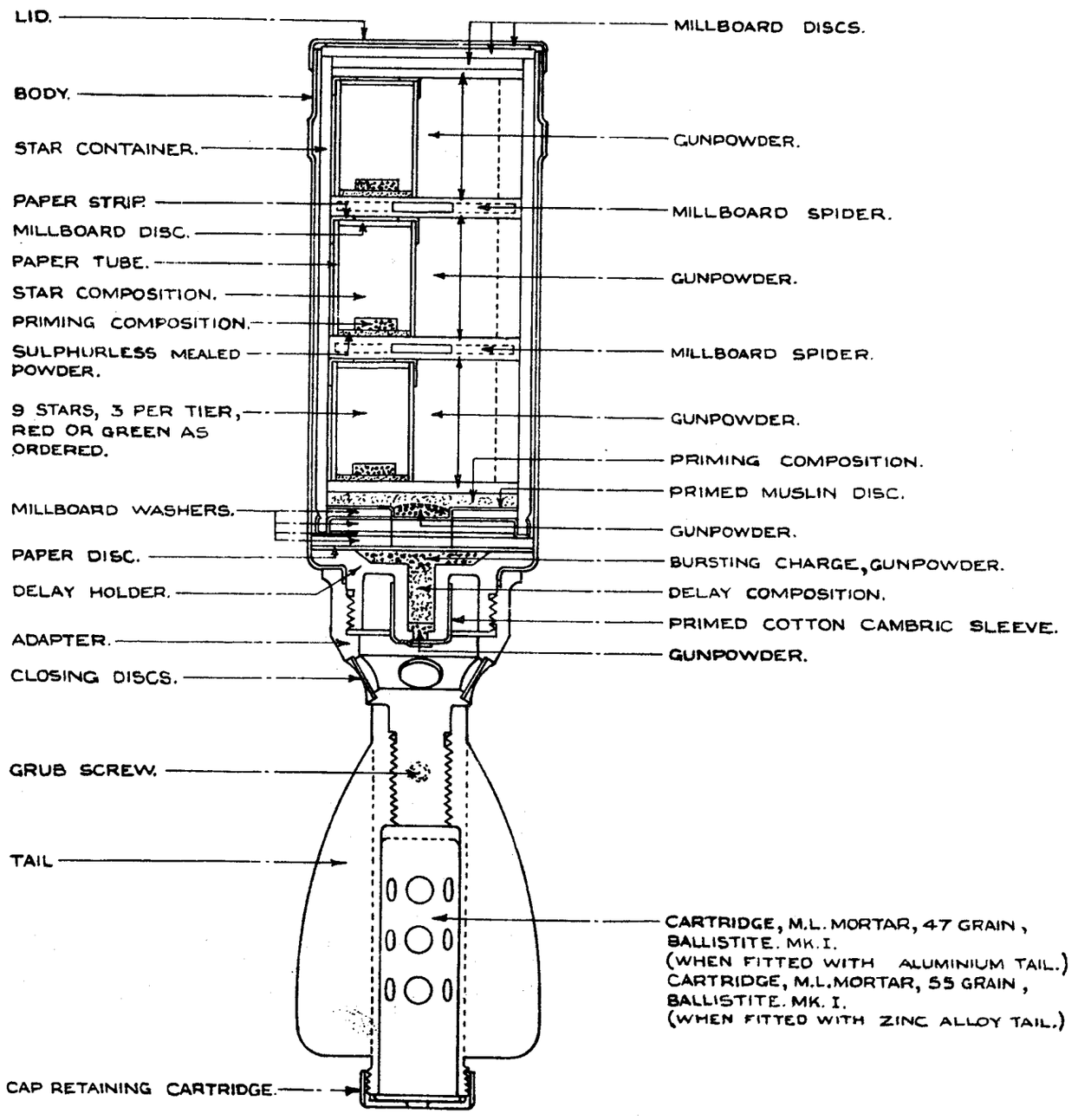
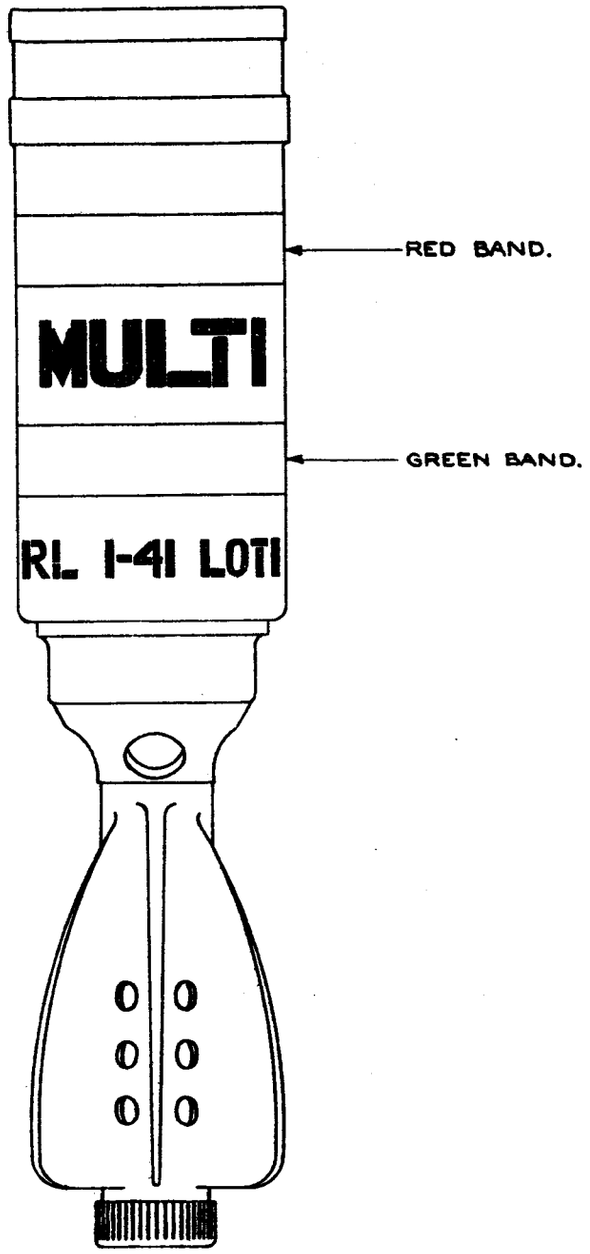

LID.
BODY.
STAR CONTAINER.
PAPER STRIP.
MILLBOARD DISC.
PAPER TUBE.
STAR COMPOSITION.
PRIMING COMPOSITION.
SULPHURLESS MEALED POWDER.
9 STARS, 3 PER TIER, RED OR GREEN AS ORDERED.
MILLBOARD WASHERS.
PAPER DISC.
DELAY HOLDER.
ADAPTER.
CLOSING DISCS.
GRUB SCREW.
TAIL
CAP RETAINING CARTRIDGE.
MILLBOARD DISCS.
GUNPOWDER.
MILLBOARD SPIDER.
GUNPOWDER.
MILLBOARD SPIDER.
GUNPOWDER.
PRIMING COMPOSITION.
PRIMED MUSLIN DISC.
GUNPOWDER.
BURSTING CHARGE, GUNPOWDER.
DELAY COMPOSITION.
PRIMED COTTON CAMBRIC SLEEVE.
GUNPOWDER.
CARTRIDGE, M.L. MORTAR, 47 GRAIN, BALLISTITE. MK. I. (WHEN FITTED WITH ALUMINIUM TAIL.)
CARTRIDGE, M.L. MORTAR, 55 GRAIN, BALLISTITE. MK. I. (WHEN FITTED WITH ZINC ALLOY TAIL.)

FIG. 70.


RED BAND.
MULTI
GREEN BAND.
RL 1-41 LOTI

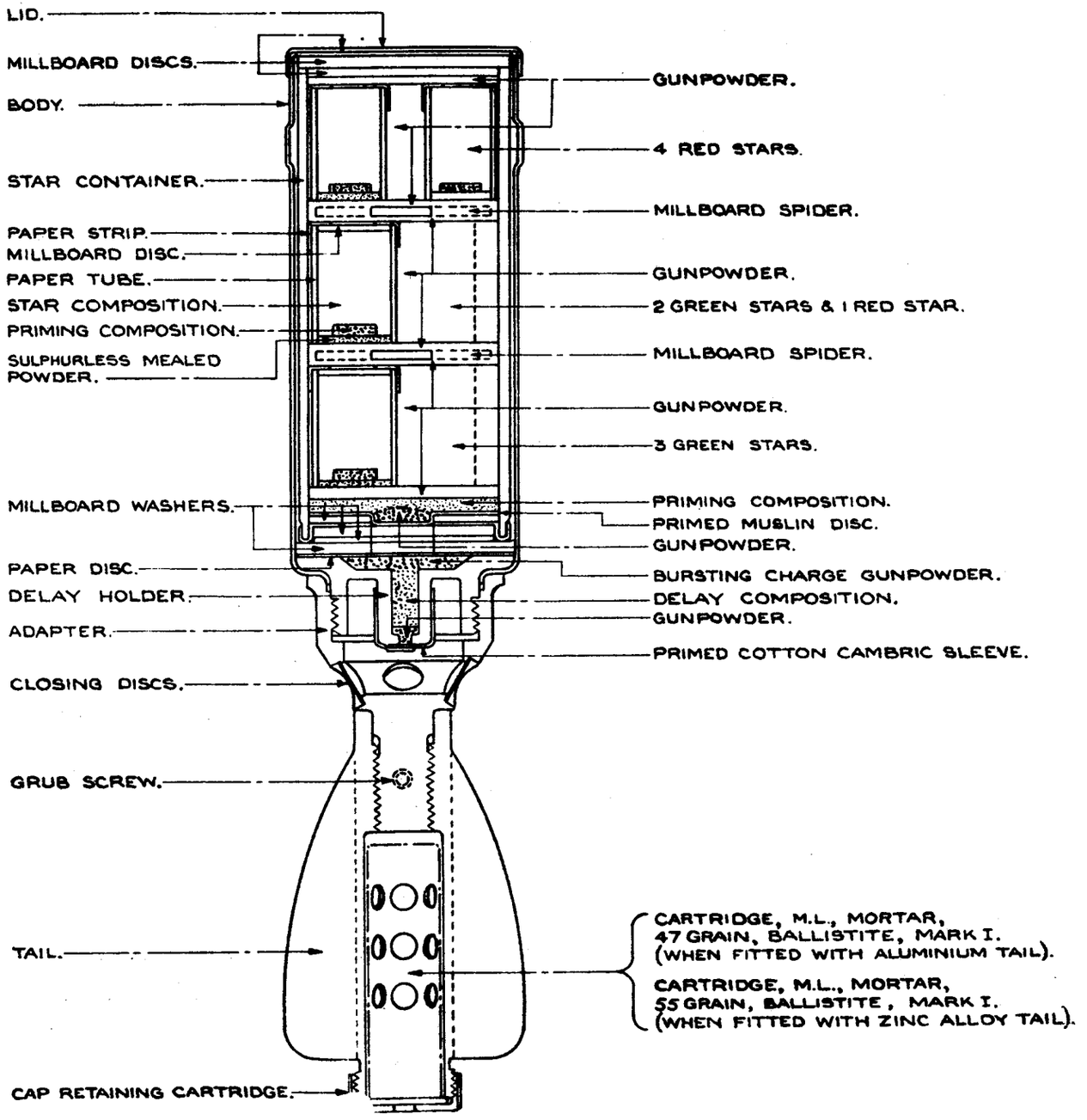

LID.
MILLBOARD DISCS.
BODY.
STAR CONTAINER.
PAPER STRIP.
MILLBOARD DISC.
PAPER TUBE.
STAR COMPOSITION.
PRIMING COMPOSITION.
SULPHURLESS MEALED POWDER.
MILLBOARD WASHERS.
PAPER DISC.
DELAY HOLDER.
ADAPTER.
CLOSING DISCS.
GRUB SCREW.
TAIL.
CAP RETAINING CARTRIDGE.
GUNPOWDER.
4 RED STARS.
MILLBOARD SPIDER.
GUNPOWDER.
2 GREEN STARS & 1 RED STAR.
MILLBOARD SPIDER.
GUNPOWDER.
3 GREEN STARS.
PRIMING COMPOSITION.
PRIMED MUSLIN DISC.
GUNPOWDER.
BURSTING CHARGE GUNPOWDER.
DELAY COMPOSITION.
GUNPOWDER.
PRIMED COTTON CAMBRIC SLEEVE.
CARTRIDGE, M.L., MORTAR, 47 GRAIN, BALLISTITE, MARK I. (WHEN FITTED WITH ALUMINIUM TAIL).
CARTRIDGE, M.L., MORTAR, 55 GRAIN, BALLISTITE, MARK I. (WHEN FITTED WITH ZINC ALLOY TAIL).

FIG. 71.

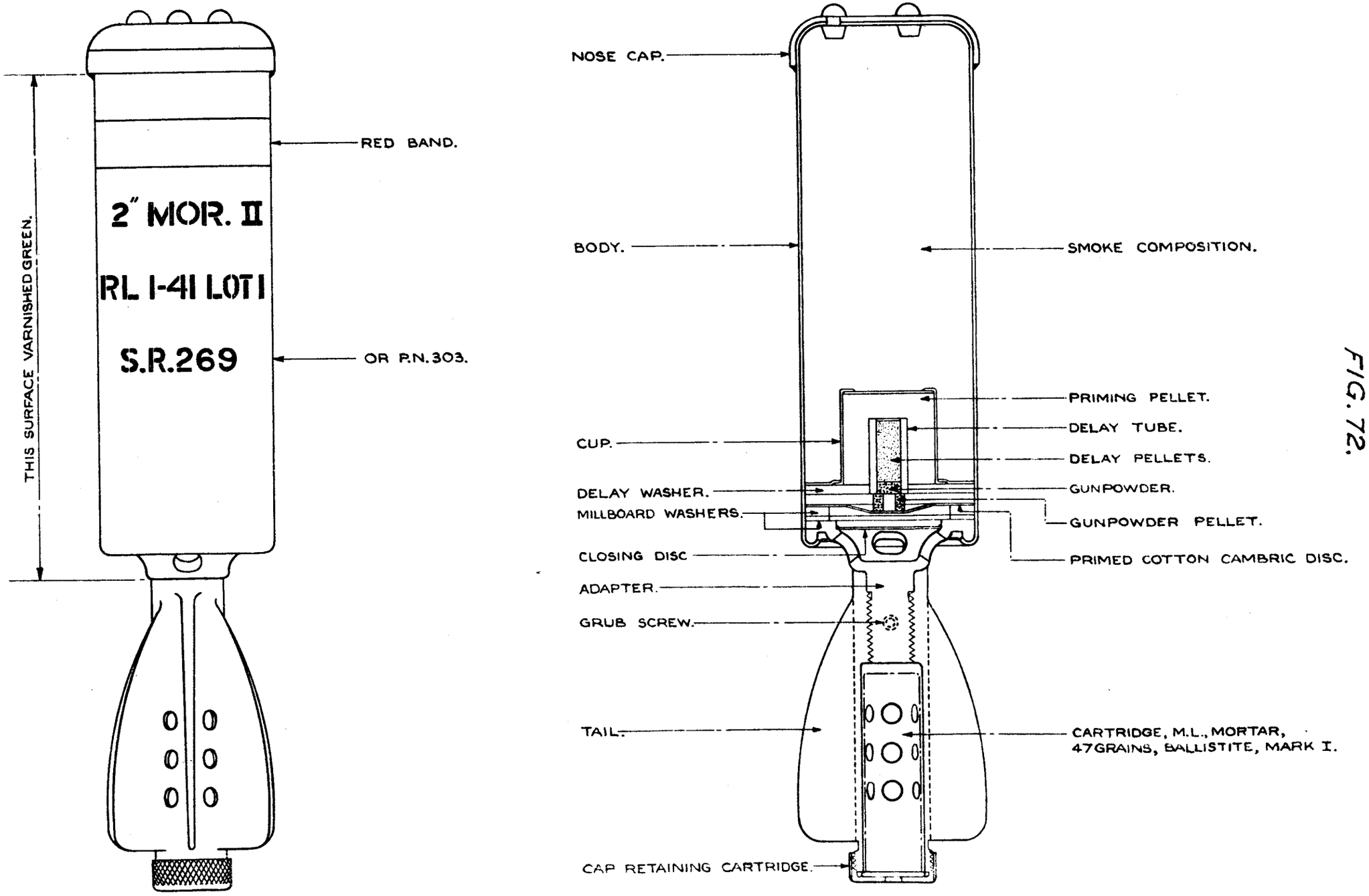
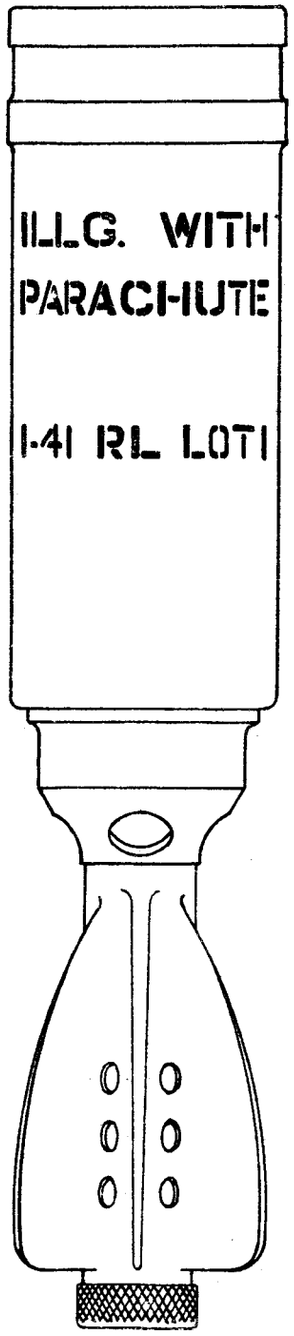

THIS SURFACE VARNISHED GREEN.
RED BAND.
2" MOR. II
RL 1-41 LOT 1
S.R.269
OR P.N.303.
NOSE CAP.
BODY.
SMOKE COMPOSITION.
PRIMING PELLET.
DELAY TUBE.
CUP.
DELAY PELLETS.
DELAY WASHER.
GUNPOWDER.
MILLBOARD WASHERS.
GUNPOWDER PELLET.
CLOSING DISC
PRIMED COTTON CAMBRIC DISC.
ADAPTER.
GRUB SCREW.
TAIL.
CARTRIDGE, M.L., MORTAR,
47GRAINS, BALLISTITE, MARK I.
CAP RETAINING CARTRIDGE.

FIG. 72.


ILLG. WITH
PARACHUTE
1-41 RL LOTI

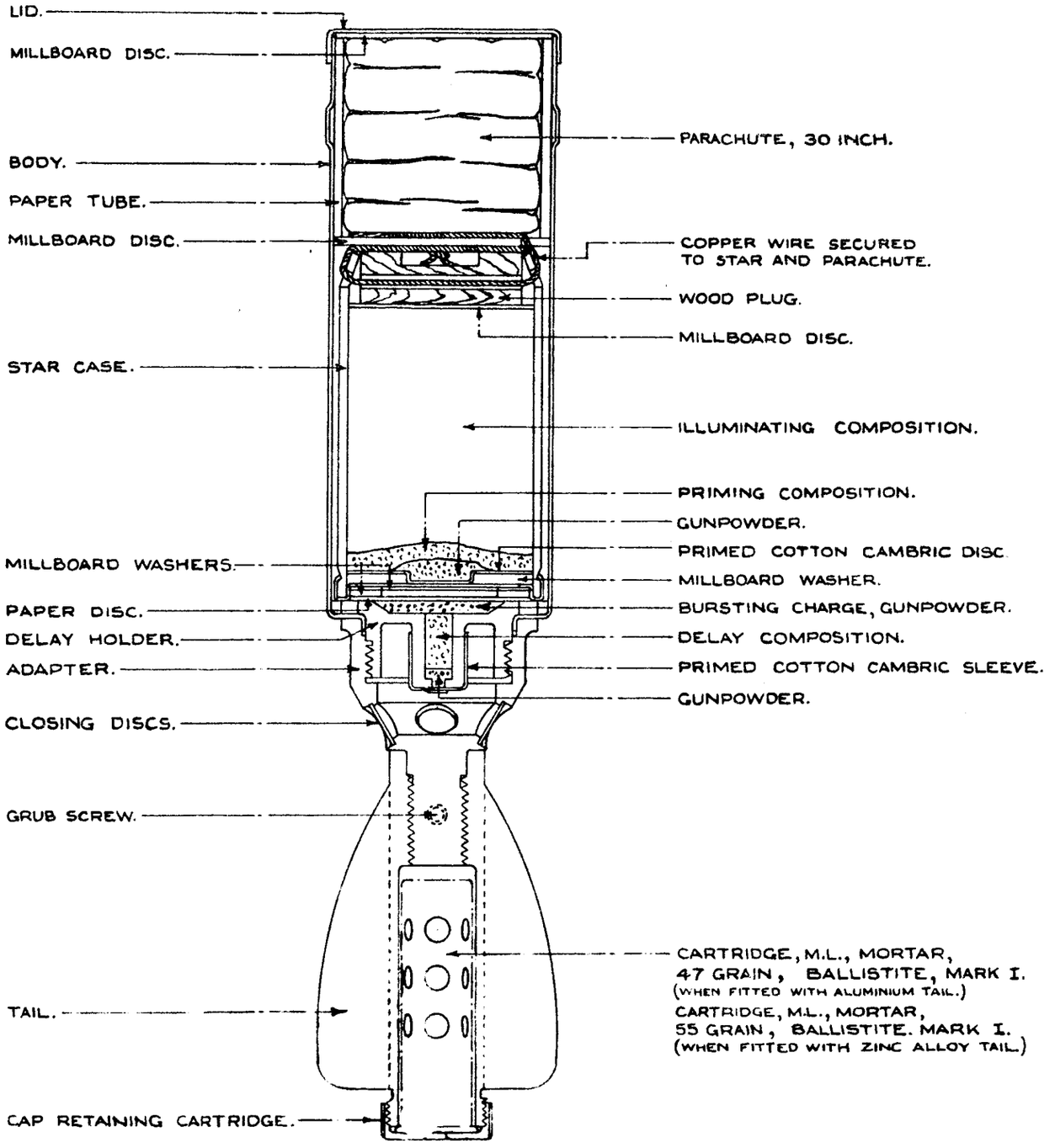
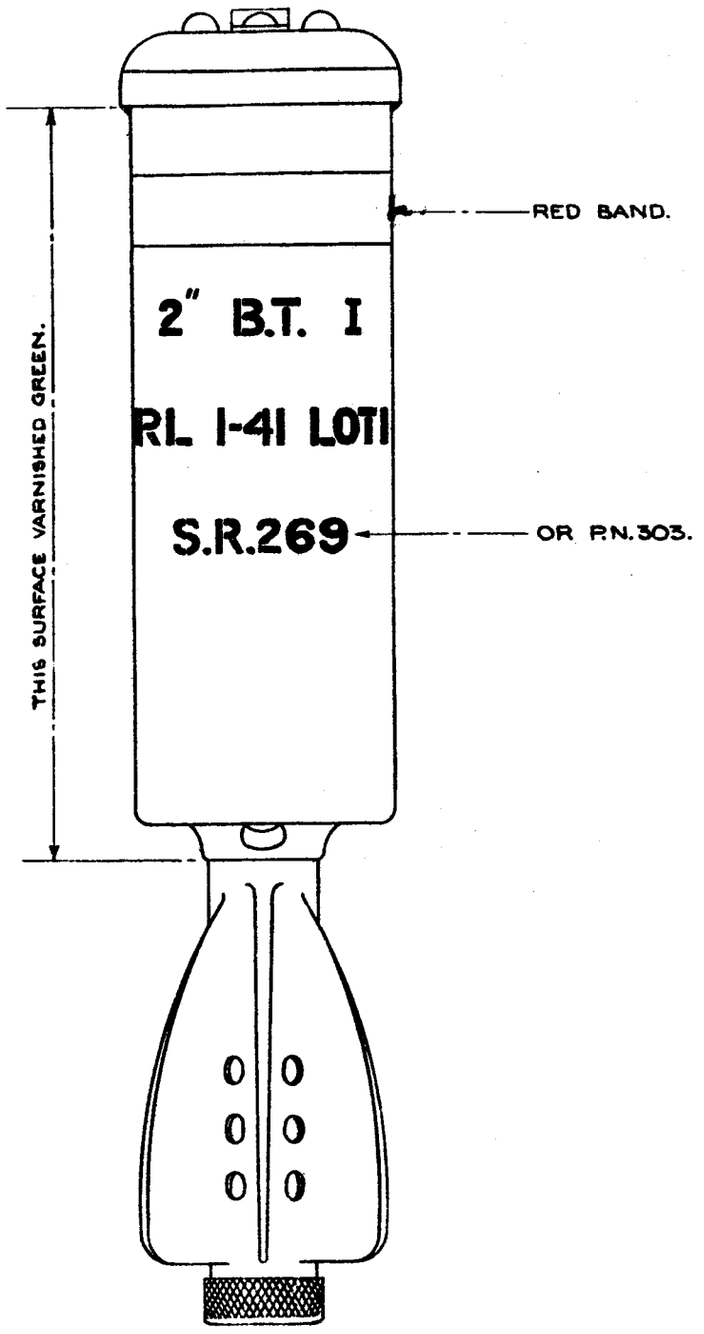

LID.
MILLBOARD DISC.
BODY.
PAPER TUBE.
MILLBOARD DISC.
STAR CASE.
MILLBOARD WASHERS.
PAPER DISC.
DELAY HOLDER.
ADAPTER.
CLOSING DISCS.
GRUB SCREW.
TAIL.
CAP RETAINING CARTRIDGE.
PARACHUTE, 30 INCH.
COPPER WIRE SECURED TO STAR AND PARACHUTE.
WOOD PLUG.
MILLBOARD DISC.
ILLUMINATING COMPOSITION.
PRIMING COMPOSITION.
GUNPOWDER.
PRIMED COTTON CAMBRIC DISC.
MILLBOARD WASHER.
BURSTING CHARGE, GUNPOWDER.
DELAY COMPOSITION.
PRIMED COTTON CAMBRIC SLEEVE.
GUNPOWDER.
CARTRIDGE, M.L., MORTAR, 47 GRAIN, BALLISTITE, MARK I. (WHEN FITTED WITH ALUMINIUM TAIL.)
CARTRIDGE, M.L., MORTAR, 55 GRAIN, BALLISTITE. MARK I. (WHEN FITTED WITH ZINC ALLOY TAIL.)

FIG. 73.


THIS SURFACE VARNISHED GREEN.
RED BAND.
2" B.T. I
RL 1-41 LOTI
S.R.269
OR P.N.303.

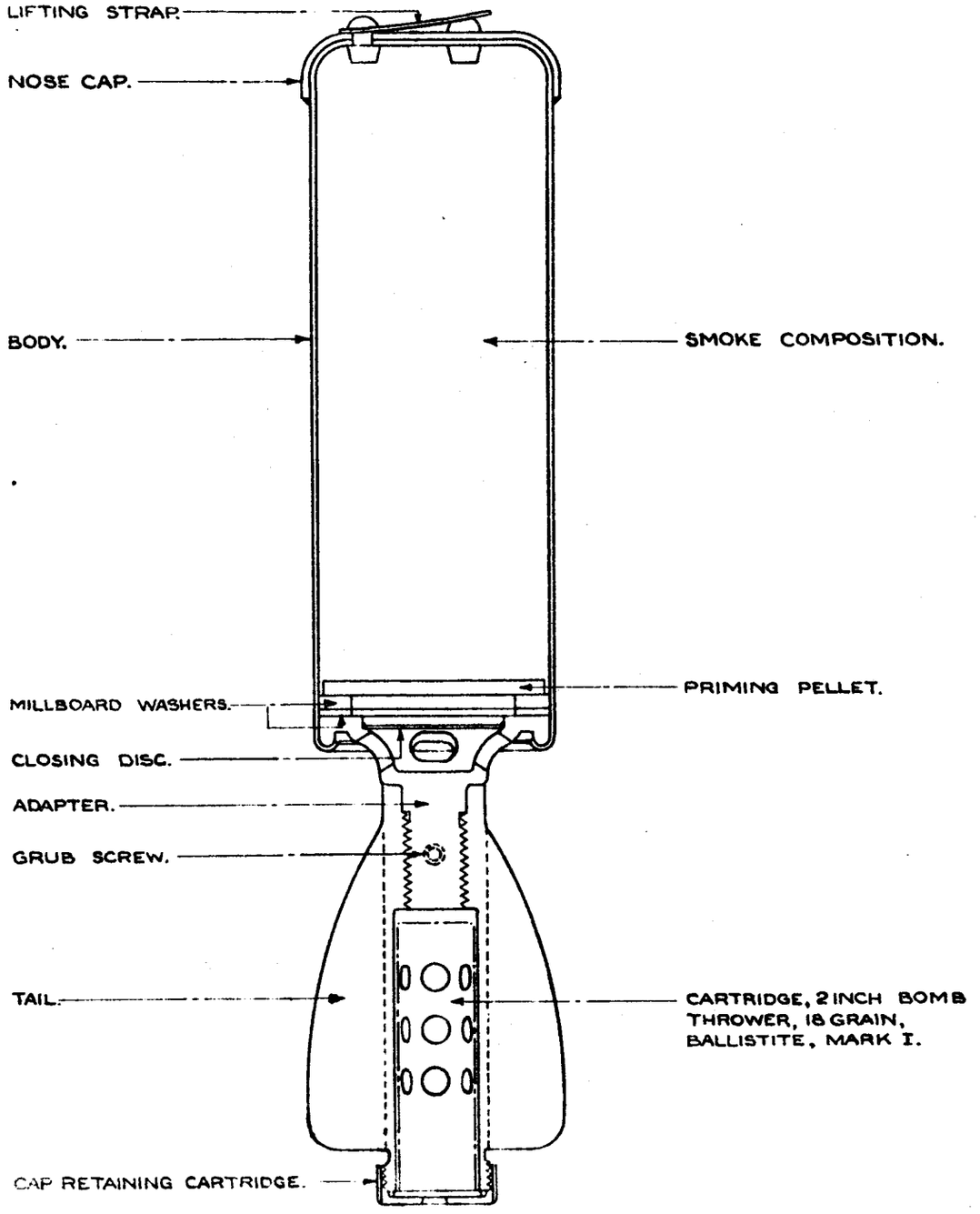

LIFTING STRAP.
NOSE CAP.
BODY.
SMOKE COMPOSITION.
PRIMING PELLET.
MILLBOARD WASHERS.
CLOSING DISC.
ADAPTER.
GRUB SCREW.
TAIL.
CARTRIDGE, 2 INCH BOMB THROWER, 18 GRAIN, BALLISTITE, MARK I.
CAP RETAINING CARTRIDGE.

FIG 74.

FIG. 75.

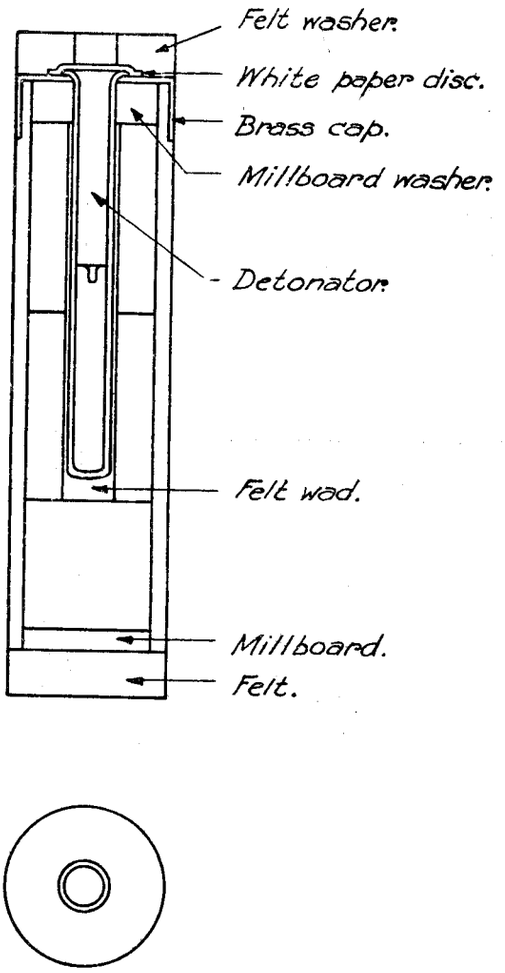

Felt washer.
White paper disc.
Brass cap.
Millboard washer.
Detonator.
Felt wad.
Millboard.
Felt.

FIG. 80.

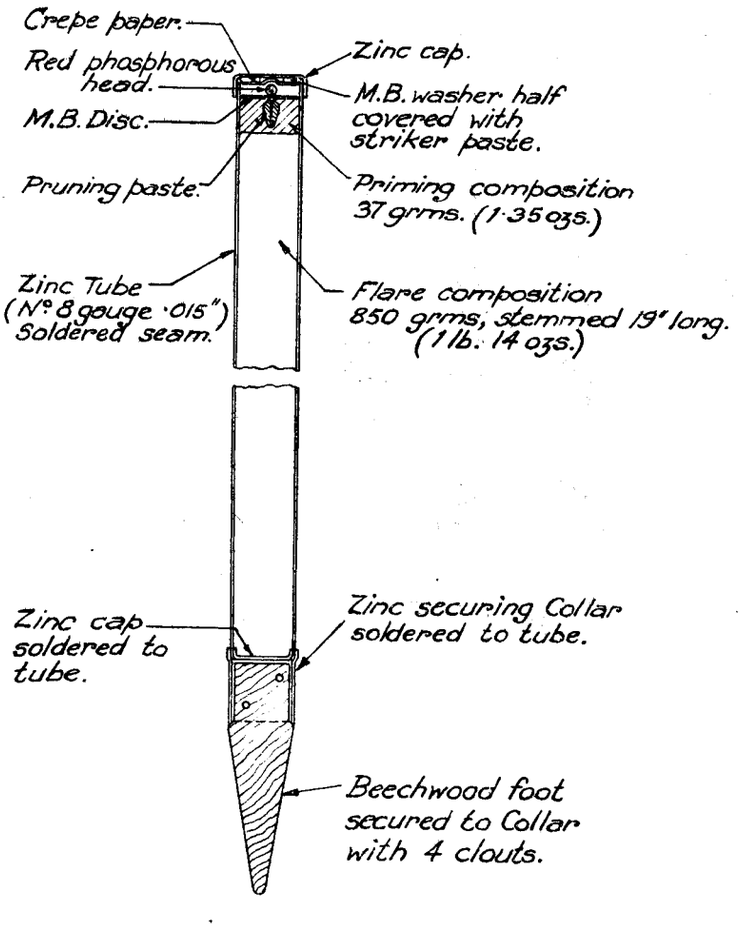

Crepe paper.
Red phosphorous head.
M.B. Disc.
Pruning paste.
Zinc Tube (No 8 gauge ·015") Soldered seam.
Zinc cap.
M.B. washer half covered with striker paste.
Priming composition 37 grms. (1·35 ozs.)
Flare composition 850 grms, stemmed 19" long. (1 lb. 14 ozs.)
Zinc cap soldered to tube.
Zinc securing Collar soldered to tube.
Beechwood foot secured to Collar with 4 clouts.

FIG. 76.

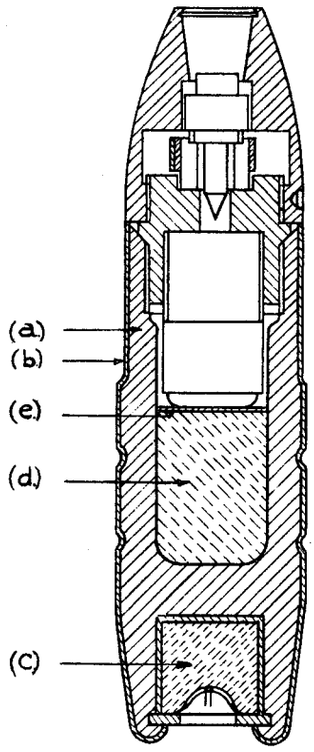



FIG. 77.

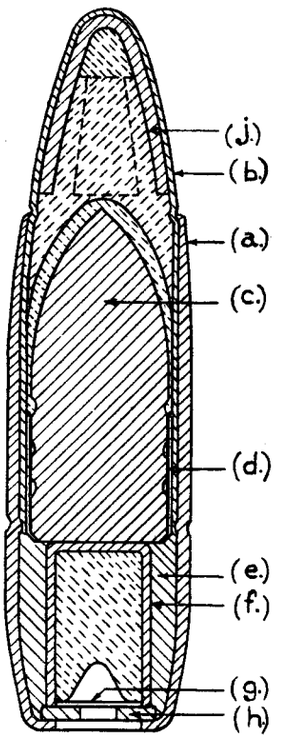



FIG. 78.

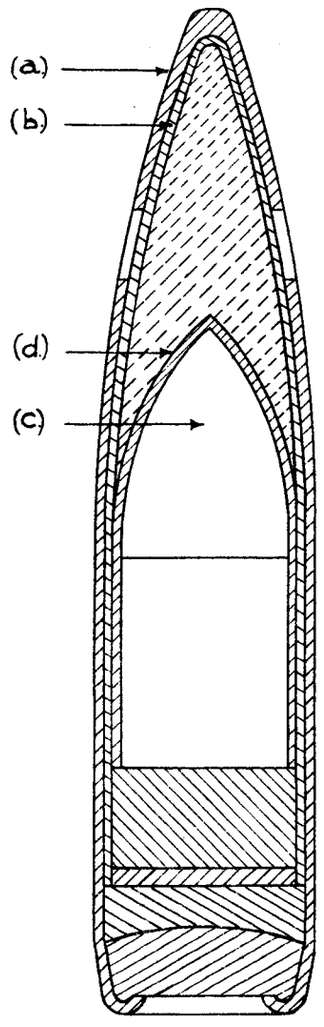



FIG. 79.