

AMMUNITION BULLETIN Nº 46

ITEMS 1256-1288

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MINISTRY OF SUPPLY

AMMUNITION BULLETIN NO.46

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ISSUED BY
CHIEF INSPECTOR OF ARMAMENTS

Item No.

- 1277 Box, Ammn. S.B. M.L.4.2 in. Mortar, B.183 Mk.1
- 1269 Boxes, Ammn. Small Arm - Identification of contents and method of packing.
- 1268 Bomb, Signal, Pintail Mk.1 (Fig.522)
- 1278 Carrier, Ammn. S.B. M.L. 4.2 in. Mortar, No.12 Mk.1.
- 1273 Cartridge, Q.F. 25 pr. Cordite W.M.017. Intermediate charge increment (For India).
- 1256 Float Smoke 50 lb. Mk.1 and 2 (Fig.514, 515 & 516).
- 1271 Fuze, Percn. D.A. No.162. Modification.
- 1272 " " " " Bulk packing.
- 1265 Fuze, T. & P. No.222, All Marks. Marking to indicate variations in C.M.T's.
- 1263 Fuze, Percussion, No.245 Mk.1A.
- 1264 Fuzes, Weight Marking
- 1262 Grenade, Hand, No.82 Mk.1. Change of Mark.
- 1274 Grenade, Hand Drill, No.82 Packing.
- 1260 Igniter, electric, No.88 Mk.2 (Fig. 520)
- 1261 Igniter, No. 90 Mk.2 (Fig. 521)
- 1258 Implements, ammunition - Key No. 224 Mk.1 (Fig.518)
- 1257 Instructional Igniter, No.74 Grenade, Mk.2 (Fig. 517)
- 1267 Packages, ammunition. Special marking to facilitate identification.
- 1259 Shell, Q.F. H.E. 6 pr. 10 cwt. Mk. 10T. Method of filling (Fig.519)
- 1275 Shell, Q.F. H.E. 12 pr. 12 cwt. "OBSOLESCEMENT"
- 1266 Shell, Q.F. H.E. 25 pr. Smoke boxes.
- 1270 Shell, Q.F. S.A.P. 4.5 in. 4.7 in., & 5.25 in. Method of Filling design amended.
- 1276 Shell, Q.F. Shrapnel. "OBSOLETE" and "OBSOLESCEMENT"
- 1279 Watertight Steel Boxes - Inner Lids (Fig. 523).

ENEMY AMMUNITION

GERMAN

Item No.

1280	Fuze AZ.1 (Fig.524)
1281	Fuze Wgr.Z T (Fig.525)
1282	Fuze Wgr. Z.38c (Fig.526)
1283	Fuze Kz. C/27 (Ln) (Fig.527)
1284	Fuze Base 27/34. Wz.36 (Polish origin) (Fig.528)
1285	Fuze Base C/38. (Fig.529)
1286	Fuze Zt.Z.S/60. nA.Zn. (Fig.530)
1287	8.8 cm. Flak Star Shell (Fig.531)
1288	10 cm. LFH.18 Hollow charge (Fig.532) (HL/A) (HL/B) and (HL/C)

AMENDMENTS

Bulletin No.42. Contents sheet. Page 1. After Item 1106 insert
"1108 M.L.2 in. and 3 in. Mortar
Ammunition. Packages for Far
East use"

Bulletin No.43. Item 1139. Page 6, line 3. Delete "Size 248" and
substitute "Size 240A"

Bulletin No.44. Item 1206. Col.5 of Table. Last line, For "2 No.2 Mk.1"
substitute "2 No.11 Mk.1".

1256. FLOAT SMOKE 50 lbs. MARKS 1 and 2 (Figs. 514, 515 & 516)

Mark 1 (Fig. 514)

The store is comprised of the following main components :-

- (1) Body of sheet steel or terne plate, lid fitted with an internal baffle, carrying handle, loose locating ring, bottom with locating cylinder, welded in position, and lid clamping band.
- (2) Generator Smoke No. 24 Mark 3, as ordered to suit the Smoke Float.
- (3) Igniter Smoke Float 50 lb. Mark 1 (See Fig. 515 for details of assembly).

The body is a commercial drum with deep swages, a longitudinal seam welded, and a seamed on bottom.

The lid is secured in position after complete assembly by the clamping band, the joint being made watertight by packing with asbestos string coated with luting. Four smoke emission holes are provided in the lid and are covered by lassovic patches.

Central location of the Generator is ensured by the locating cylinder which is welded to the bottom, the loose locating ring seating on the top of the Generator to control side movement.

Normal ignition of the Smoke Generator No. 24 Mark 3 is by portfire or fusee (see Item 728 Bulletin No. 33). For use with the Float Smoke, the Generator is, however, provided with a modified ignition system.

The modification consists of the replacement of the screwed cap by the Igniter Smoke Float 50 lb. Mark 1 and the addition of a primed cambric disc over the match composition on the igniter pellet. The igniter is a percussion igniter fitted with a release fork. The free end of the wire attached to the release fork is threaded through the lid of the Float and formed into a loop, which is covered by an adhesive patch.

Functioning is carried out by removing the adhesive patch over the wire loop and giving the wire a steady pull. A label giving instructions to that effect is affixed to the lid of the Float.

Effective smoke begins within 2-2½ minutes and continues for 15-24 minutes.

The Float Smoke is finished light green and stencilled with full nomenclature, lot number and date of filling, the lot number and date of filling being that of the Generator.

Overall size is 11.75" dia. x 17.875 inches.

Storage

The Floats are stored in Group XI Category X.

Float Smoke 50 lb. Mark 2 (Fig. 516)

The Mark 2 differs from the Mark 1 in that the top is secured to the body by a double seam instead of a clamping band.

The Mark 2 has a body of swaged form slightly different from that of the Mark 1.

The introduction of the Mark 2 renders the Mark 1 obsolescent.

Marking, dimensions and storage as for the Mark 1.

1257. INSTRUCTIONAL IGNITER, NO. 74 GRENADE MK.2 (Fig. 517)

Reference Bulletin No.41, Item 1062. The abovementioned igniter, for use with the No.74 Mk.2 Instructional Grenade, has been approved. It comprises an empty Service detonator tube, dummy fuze, brass sleeve, and a spent .410 cartridge base.

One end of the dummy fuze, which consists of a length of hide millband, is inserted into the detonator tube and secured by crimping. The brass sleeve, into the cup portion of which is cemented the cartridge base, is crimped to the other end of the fuze and four equi-spaced vent holes prepared around the cup are covered with a paper strip secured with shellac varnish. A small hole is drilled right through the assembly near the outer end of the detonator tube.

1258. INSTRUMENTS, AMMUNITION - KEY, NO. 224 Mk.1 (Fig. 518)

Key, No.224 Mk.1 for inserting and removing Fuze No.213 has been approved. The key is of steel and details are shown in Fig. 518.

1259. SHELL, Q.F. H.E. 6 pr. 10 cwt. MK. 10T. METHOD OF FILLING (Fig.519)

This H.E. shell, to M. of F. design DD(L)18768 is prepared for Fuze No.244 and Tracer No.13. If the shell is plugged, Plug, fuze-hole 1.6 in. No. 1 is used.

The bursting charge of T.N.T. or R.D.X/T.N.T. is sealed by a waxed felt washer under a millboard washer. A 2.1 in. cavity accommodates the fuze or plug, fuze hole and a 5 dr. C.E. pellet exploder over a felt disc. The exploder cavity is lined with a paper tube.

The fuze or plug, fuze hole is inserted over a leather washer, and secured by a fixing screw. Details of painting and marking are included in Fig. 519.

1260. IGNITER, ELECTRIC, NO.88 MARK 2 (Fig. 520)

This Mark differs from the Mark 1 (Item 1146 Bulletin No.43) in that the Fuze, Electric, No.53, is replaced by Nobels L.T. Electric Safety Fuze and that the take over is by match composition (P.N.196) instead of gunpowder. The bared instantaneous fuze is accommodated in a copper tube in lieu of the celluloid capsule, (as in the Mark 1), the end of the copper tube being turned over and embedded in the match composition. A vent in the detonator tube is provided adjacent to the match composition and is covered by a patch of lassovic tape.

The igniter is used for functioning of Simulator Gun Flash No.3.

Packing

18 Igniters are packed in Cylinder No.199.F, and 10 Cylinders in Steel Box G.70 or M.104.

Stowage Dimensions of Boxes

G.70	19.15 x 8.35 x 7.85 inches
M.104	19.3 x 8.2 x 7.6 inches

Storage

Group IX

1261. IGNITER, NO. 90 MARK 2 (Fig. 521)

This Mark differs from the Mark 1 (Item 1147 Bulletin No.43) in that the bared instantaneous fuze is accommodated in a copper tube

instead of a celluloid capsule. The take over is from match composition (P.N.196) in lieu of gunpowder, the end of the copper tube covering the fuze being turned over and embedded in the match composition. The igniter is used for functioning of Simulator Gun Flash No.3, initial ignition being by fusee or safety fuze.

Packing

36 Igniters are packed in Cylinder No.199.F and 10 Cylinders in Steel Box G.70 or M.104. Stowage dimensions of these boxes are given in Item 1260 above.

Storage

Group IX.

1262. GRENADE, HAND, NO.82, Mk.1. CHANGE OF MARK

Reference Bulletin No. 35, Item 808.

Drawings and specifications governing the manufacture of Grenade No.82 have been amended to provide for the rot-proofing of the stockinette bag, elastic braid and sewing cotton. The marking on the cups of grenades made up with rot-proofed materials will be "No.82 Mk.1/1".

1263. FUZE, PERCUSSION, NO. 245 Mk. 1A.

The abovementioned fuze has been declared "OBSOLETE" and existing fuzes of this Mark are being withdrawn from Service.

1264. FUZES - WEIGHT MARKING

The marking of the fuzes enumerated below with the letters "L" or "LL" to indicate "Light" fuzes or "Very Light" fuzes respectively, will in future be discontinued and where fuzes have already been marked, these markings will be ignored.

Fuze No.119 and 119B D.A. & Peron. Mks.2 and 8.

" No.231 and 231B Peron. D.A. All marks.

" No.232 Peron. D.A. All marks.

1265. FUZE, T. & P. NO.222 ALL MARKS. MARKING TO INDICATE VARIATIONS IN C.M.T.'S.

Approval has been given for the introduction of a system of colour marking to indicate Lots of the abovementioned fuze whose C.M.T.'s (corrected mean times) fall in certain ranges within the specification limits.

Fuze covers, cylinders and boxes, will carry this marking. Colours have been allotted as follows:-

	<u>Colour</u>
C.M.T. from 24.00 to 24.49	Red
" " 24.50 to 24.99	White
" " 25.00 to 25.49	Blue
" " 25.50 to 26.00	Green

Fuze covers A band, $\frac{1}{2}$ " wide, will be painted round the fuze cover 2" from the base. The colour will be that appropriate to the C.M.T. group.

Fuze cylinders A band, $\frac{1}{2}$ " wide, round the centre of the cylinder. The colour will be the same as that of the band round the fuze cover.

Boxes A band, $\frac{1}{2}$ " wide, round the centre (over top and sides) of all boxes containing Fuze, T. & P. No.222. The colour will be the same as that of the band round the fuze covers and cylinder.

1266. SHELL, Q.F., H.E. 25 Pr. - SMOKE BOXES.

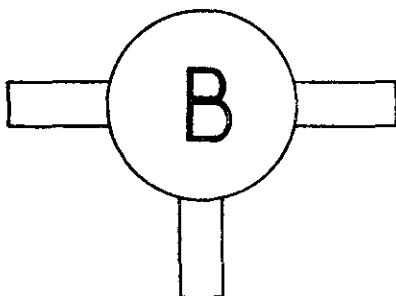
Owing to a temporary shortage of empty smoke boxes a proportion of Q.F. 25 pr. H.E. filled shell will be issued without smoke boxes. To ensure an even distribution of shell with and without smoke boxes three shell with and one shell without smoke boxes will be packed in each Box P.59.

Shell not fitted with smoke box will have the space normally occupied by the smoke box filled by an additional exploder and will be identified by having a 1 inch wide black tip. The additional exploder may be an "A" exploder bag (with the "A" barred out) containing 475 - 480 grains C.E. or alternatively, a paper wrapped C.E. pellet.

Package marking

P.59 boxes containing shell packed as above will be marked as follows:-

The 2 inch green disc, which normally denotes the presence of smoke box, will have projecting from it bars 1 inch long x $\frac{1}{2}$ inch wide, as under :-



(To denote that box contains 1 shell without smoke box,

When eventually all four shell packed are fitted with smoke boxes the usual plain 2 inch green disc will be marked on the box.

1267. PACKAGES, AMMUNITION. SPECIAL MARKING TO FACILITATE IDENTIFICATION

Reference Bulletin No.43, Item 1141. The list of abbreviations set out therein for marking of ammunition packages by overstencilling is cancelled.

The following new list, which covers a considerable number of additional stores, is being taken into use immediately:-

Small Arms Ammunition

<u>Nature</u>	<u>Abbreviations</u>
Cartridges S.A. .30 inch Belted	30-in BLT
" " .303-inch A.P.(W)	303 A.P.
" " " " Ball, Bandoliers	303 BDR
" " " " " Cartons	303 CTN
" " " " " Tracer (G) 2	303 TRA
" " " " " Incendiary (B) 7z	303 INC 7z

Handwritten:
Ann Buln
No 34 Gen 1509

<u>Nature</u>	<u>Ammunition</u>
Cartridges S.A. .30 inch Ball 8z Stripless Belts	303 BLT 8
" " " " " 7 " "	303 BLT 7
" " " " Incendiary (B) 7	303 INC 7
" " .380 inch Revolver Ball	380 REV
" " 7.92 mm Belted	792 BLT
" " " " Ball, Cartons	792 CTN
" " " " Tracer, Cartons	792 TRA CTN
" " 9 mm. Parabellum Ball	9 MM
" " .45 inch Ball, Rimless	45 AUTO
" " .50 inch Browning Belted A.P. Tracer & Incendiary Mixed	50 BROWN BLT
" " " " " Ball in cartons	50 BROWN
" " " " " Belted A.P. & Incendiary Mixed	50 BROWN API
" " " " " Incendiary in carton	50 BROWN INC
" " " " " Belted A.P. & Tracer Mixed	50 BROWN APT
" " " " " Tracer in carton	50 BROWN TRA
" " 20 mm. Oerlikon H.E.I.	20 MM HEI
" " " " H.E.I.T.	20 MM HEIT
" " " " H.E.T.	20 MM HET
" " " " H.E.I.T./SD.	20 MM SDHEIT
" " " " S.A.P./H.E.I.	20 MM SAP HEI
" " .30 Ball Carton Packed	30 in CTN
" " .30 Incendiary Carton Packed	30 in INC CTN
" " .30 Tracer Carton Packed	30 in TRA CTN
" " .30 A.P. Carton Packed	30 in A.P. CTN
" " 7.92 mm Incendiary Carton Packed	792 INC CTN
" " 7.92 mm A.P. Carton Packed	792 A.P. CTN

Gun Ammunition

Cartridges Q.F. 2 Pr. H.E.	2 PR HE
" " " A.P.C.B.C.	2 PR APCBC
" " " A.P.S.V.	2 PR SHOT SV
" " 37 mm A.P.S.V.	37 MM SHOT SV
" " 40 mm. H.E. filled Pentolite with No. 14 Tracer	40 MM PENT 12 SEC

Gun Ammunition (Contd.)

<u>Nature</u>	<u>Abbreviation</u>
Cartridge Q.F.40 mm. H.E. filled Pentolite fuze No.255 with No.14 Tracer	40 MM PENT 12 SEC
" " " " filled T.N.T. with No.11 Tracer	40 MM TNT 6 SEC
" " " " " " " " No.14 Tracer	40 MM TNT 12 SEC
" " " " " Pentolite with No.11 Tracer	40 MM PENT 6 SEC
" " " " " R.D.X., Fuze No.251, with No. 11 Tracer	40 MM RDX 6 SEC
" " " A.P. Shot	40 MM SHOT
" " 6 Pr. 6 Cwt. Mk.III Gun H.E.	6 PR 6 A.A. H.E.
" " " " " " A.P.C. Shot	6 PR 6 A.A. A.P.C.
" " 6 Pr. 7 Cwt. H.E.	6 PR 7 H.E.
" " " " A.P.C.B.C.	6 PR 7 APCBC
" " " " " Decoppering	6 PR 7 APCBC DEC
" " " " A.P. Shot	6 PR 7 SHOT
" " " " " " H.V. Charge	6 PR 7 SHOT
" " " " A.P. C.R.	6 PR 7 SV CR
" " " " H.E. Hybrid	6 PR 7 HYB
" " " " H.E. Decoppering	6 PR 7 DEC
" " " " A.P.H.V. Dec	6 PR 7 APDEC
" " " " A.P.C. Shot	6 PR 7 APC
" " " " A.P. D.S.	6 PR 7 SV/DS
" " 17 Pr. A.P.C. Shot	17 PR A.P.C.
" " " H.E. Full Charge	17 PR H.E.
" " " A.P.C.B.C.	17 PR APCBC
" " " H.E. reduced charge	17 PR HE RED
" " " A.P.D.S.	17 PR SV/DS
" " " H.E./H.C. with M.48 fuze	17 PR HE HC
" " " H.E./Super H.C.	17 PR HE SUPR HC
" " 77 mm. H.E/H.C. with M.48 fuze	77 MM HE HC
" " " H.E./Super H.C.	77 MM HE SUPR HC
" " " H.E. reduced charge	77 MM HE RED
" " " A.P.C.B.C.	77 MM APCBC
" " " A.P. D.S.	77 MM SV/DS
" " 3 in. Howr. Smoke	3 IN HOW SMK

Gun Ammunition (Contd.)

<u>Nature</u>				<u>Abbreviation</u>
Cartridge Q.F. 3 in. Howr. H.E.				3 IN HOW HE
Shell Q.F. 25 Pr. H.E. filled T.N.T.				25 PR HE
"	"	"	" " Anatol	25 PR HE AMTL
"	"	"	" plugged for Fuze T.97	25 PR HE 97
"	"	"	Smoke (except Mk.VIIB)	25 PR SMK
Shot	"	"	A.P.	25 PR APS
Shell	"	"	Coloured Smoke - Red	25 PR COL SMK RED
"	"	"	" " - Green	25 PR COL SMK GRN
"	"	"	" " - Blue	25 PR COL SMK BLU
"	"	"	" " - Yellow	25 PR COL SMK YEL
"	"	"	Smoke Mk. VIIB	25 PR SMK VIIB
"	"	"	Coloured Smoke Mk.VIIB	25 PR SMK (Colour) VIIB
"	"	"	" " Flare Fuzed - Red	25 PR FLAR RED
"	"	"	" " " - Green	25 PR FLAR GRN
"	"	"	Star	25 PR STAR
Cartridges Q.F. 25 Pr. 2 lb. 1 oz. 12 dr. FNH				25 PR CART FNH
"	"	"	1 lb. 14 oz. 4 dr. NQ.	25 PR CART NQ
"	"	"	2 lb. 1 oz. 4 dr. NH	25 PR CART NH
"	"	"	1 lb. 11 oz. 4 dr. WM	25 PR CART W
"	"	"	2 lb. 8 oz. WM	25 PR CART SUPR W
"	"	"	2 lb. 13 oz. 8 dr. NQ/S	25 PR SUPR NQ
"	"	"	Supercharge increment charge	25 PR SUPER INCR
"	"	"	Normal charge " "	25 PR INTER INCR
"	"	"	3.7" Mks.I - III guns H.E. fuzed No.208 or 214	3.7 AA HE
"	"	"	" " " fuzed No.199 flashless	3.7 AA FUZ 119 FL
"	"	"	" " " plugged for Fuze T.98	3.7 AA HE 98
"	"	"	" " " Plugged	3.7 AA HE PLGD
"	"	"	" " " Reduced Charge, fuzed No.223	3.7 AA FUZ 223 RED
"	"	"	" " " Reduced Charge, fuzed No.230	3.7 AA FUZ 230 RED

Gun Ammunition (Contd.)

<u>Nature</u>	<u>Abbreviations</u>
Cartridges Q.F. 3.7" Mks.I - III guns A.P. shot	3.7 AA SHOT
" " " Mk.VI gun H.E.	3.7 AA VI
Shell Q.F. 3.7" Howr. H.E. A.T.	3.7 HOW HEAT
" " " " Smoke	3.7 HOW SMK
" " " " Coloured Smoke	3.7 HOW COL SMK (Colour)
" " " " Star	3.7 HOW STAR
Cartridge Q.F. 3.7" Howr.	3.7 HOW CART
" " " " Supercharge	3.7 HOW SUPER
" " 95 mm. Tank Howr. H.E.	95 MM TK HE
" " " " " Smoke	95 MM TK HOW SMK
" " " " " H.E.A.T.	95 MM TK HEAT
Shell Q.F. 95 mm S.P. and Inf. Howr. H.E.	95 MM SP HE
" " " " " " H.E.A.T.	95 MM SP HEAT
" " " " " " Coloured Smoke	95 MM SP COL SMK (Colour)
Cartridges B.L. 4.5" Gun 9 lb. 2 oz. WM	4.5 GN CART 3RD
" " " " 10 lb. 9 oz. N/S	
" " " " 2 lb. 15 oz. WM	4.5 GN CART 1ST
" " " " 3 lb. 1 oz. NQ	
" Q.F. 5.25" Full Charge	5.25 AA CART
" B.L. 5.5" 9 lb. 2 oz. WM	5.5 CART 4TH
" " " 9 lb. 13 oz. NQ/S	
" " " 4 lb. 4 oz. WM	5.5 CART 2ND
" " " 4 lb. 12 oz. NQ	
" " " 12 lb. 9 oz. (for 80 lb. Shell)	5.5 (80 lb) CART.
" " 7.2" Howr. 11 lb. 10 oz. WM	7.2 HOW 3RD
" " " 13 lb. 11 oz. N	7.2 HOW 3RD
" " " 7 lb. N/S	7.2 HOW 5TH
" " " 19 lb. 12 oz. WM	7.2 CART 19 $\frac{3}{4}$ W
" " " 24 lb. N/S	7.2 CART 24 N/S

Mines, Mortar Bombs and Grenades

Mines Anti Tank Mk.V H.C.	MINE5 HC
" Shrapnel Mk.II	MINE SHIP 2

Mines, Mortar Bombs and Grenades

<u>Nature</u>	<u>Abbreviations</u>
Bombs 2" Mortar H.E.	2 MOR HE
" " " Smoke	2 MOR SMK
" " " Illuminating	2 MOR ILL
" " " Red	2 MOR RED
" " " Green	2 MOR GRN
" " " Multi Star White	2 MOR WHI
" " " Signal Success	2 MOR SIG SUCS
" " " Tank Smoke (Filled H.C.E.)	2 MOR TK SMK
" " " or Bomb Thrower (Phosphorus)	2 MOR TK WP
" " " Tank Smoke with 55 grains Cartridges (Filled H.C.E.)	2 MOR TK SMK LR
" " " or Bomb Thrower Smoke with 55 grains Cartridges (Phosphorus)	2 MOR TK WP LR
" 3" Mortar H.E. with 280 grains Aug. Carts	3 MOR HE
" " " Smoke " " " " "	3 MOR SMK
" " " " (Phosphorus)	3 MOR SMK WP
" 4.2" Mortar H.E.	4.2 MOR HE
" " " Smoke (Phosphorus)	4.2 MOR SMK WP
" Projector Infantry H.E. Anti Tank	PIAT
Grenades No.36.M.	36 GREN
" No.36 Rifle	36 GREN RIFLE
" No.69	69 GREN
" No.74 Mk.II	74 GREN
" No.75	75 GREN
" No.77 (Phosphorus)	77 GREN WP
" No.79	79 GREN
" No.80 (Phosphorus)	80 GREN WP
" No.82	82 GREN
Detonator Assembly No. 74 Grenade	DET ASS 74 GREN

Fuzes

Fuzes No.117	FUZ 117
" " with Exploders	FUZ 117 W/EXPR
" No.119 " "	FUZ 119

Fuzes (Contd.)

<u>Nature</u>	<u>Abbreviations</u>
Fuzes No.221	FUZ 221
" No.222 with Exploders	FUZ 222 W/EXPR.
" No.222B " "	FUZ 222B W/EXPR.
" No.223	FUZ 223
" No.231	FUZ 231
" No.289	FUZ 289
" No.291	FUZ 291
" Mine Contact A.T. No.3	FUZ MINE AT 3

Demolition Stores

Bangalore Torpedoes 2" Mk.II	2 IN BANG TORP
Igniters Bangalore Torpedoes	IGN 2 IN BANG TORP
Bangalore Torpedoes Lightweight 6 ft.	1½ IN BANG TORP 6 FT
" " " 10 ft.	1½ IN BANG TORP 10 FT
Nose Caps for Bangalore Torpedoes	NOSES BANG TORPS
Clams	CLAM
Limpets Mk.IV	LIMPET
Bomb Demolition 40 lb. No.1	BOMB DEM NO. 1
Charges Demolition No. 1, 6 lb. Mk.III	BHIVE 6 LB.
" " No. 2, 25 lb.	GEN WADE
Frames Charge Demolition No. 2, with Legs	FRAMES GEN WADE
Charges Demolition No. 3, 15 lb.	HAYRICK
Frames Charges Demolition No. 3, 15 lb.	HAYRICK FRAMES
Gear for " " " "	HAYRICK GEAR
Charges Demolition No. 5 6 lb. (Waterproof)	BHIVE 6 LB UW
" " No. 6, (Beehive 16/25 lb.)	BHIVE 16 LB
" " No. 7, (Beehive 35/50 lb.)	BHIVE 35 LB
" " No. 8, 60 lb.	BHIVE 60 LB
" " No.10, 70 lb.	BHIVE 70 LB U.W.
" " No.11, 30 lb.	BHIVE 30 LB
" " No.12 (5 oz.)	STOCKS 5 oz.
" " No.12 (7 oz.)	STOCKS 7 oz.

Demolition Stores (Contd.)

<u>Nature</u>	<u>Abbreviations</u>
Mine A.P. No. 5 Mk. I (Macras)	5 AP MINE
Bombs Incendiary 1 $\frac{1}{4}$ lb.	BOM INC 1 $\frac{1}{4}$
Ammonal	AMNL
Slabs Demolition TNT/CE	TNT/CE
Guncotton Wet Slabs Field	G.C.SLABS
Nobel's 808 Plastic (4 oz. Ctges)	808 PLAS/1 $\frac{3}{8}$
" " " (1 $\frac{3}{4}$ ", 2", 2 $\frac{1}{2}$ " or 3" diam.)	808 PLAS/(diameter)
" " (4 oz. Ctges)	808/1 $\frac{3}{8}$
" " (1 $\frac{3}{4}$ ", 2", 2 $\frac{1}{2}$ " or 3" diam.)	808/(diameter)
P.E.	PE
P.E. 2 8 oz. Charge	PE 2(8 oz)
Primers Guncotton	PRIM/GC
" C.E.	PRIM CE
" T.N.T. 1 c.m.	TNT/PRIM
" 21 grains	PRIM 21 GR
" 18 "	PRIM 18 GR
Cordtex	C/TEX
" Plastic	CORDTEX PX
Fuze Safety	FUZ SAF
Detonators No.27	27 DET
" No.33	33 DET
Igniters Percussion	IGN PERC
" Electric No.84	IGN ELEC 84
Points Camouflet	PT CAM
Cable Electric	CABLE ELEC
Tape Insulating	TAPE INSUL
Switches No.7 with Electric Batteries	7 SWIT W/BAT
Detonators and Fuzes - Junction Caps	DET FUZ JUNC
Fuze Instantaneous	FUZ INST
Fuzes Electric No.14	FUZ 14 ELEC

Box A.S.A. H.1 with Box A.S.A. H.13
" " H.19 " " " H.20
" " H.29 Mk.2 " " H.29 Mk.3

e.g. .303" in bandoliers may be packed in either H.1 or H.13

7.92 mm. belted ammunition may be packed in H.29 Mk.2 or Mk.3

S.A.A. boxes will eventually all be Brown in colour and without identification battens. In the meantime the different box colours and types of battens which may be found may or may not be correct and are therefore no longer of any significance as an indication of method of packing.

1270. SHELL, Q.F. S.A.P. 4.5 in. 4.7 in. and 5.25 in. - M. of F. DESIGN AMENDED.

Reference Bulletin No.45 Item 1245. M. of F. Design DD(L)17504, which is applicable to the abovementioned shell, has been amended to provide for a T.N.T./B.W.X. filling for the 4.7 in. shell, and for T.N.T. as a filling to be deleted from the design. Also all reference to the 5.25 in. Mk.2 CNT shell has been deleted.

1271. FUZE, PERCUSSION, D.A.No. 162. MODIFICATION

Reference Bulletin No.43, Item 1138 para. 2. In later production a brass tag bearing the legend "WITHDRAW PIN BEFORE FIRING" is fitted over the top of the fuze cap. The tag is secured directly to the safety pin, the becket being omitted.

1272. FUZE, PERCUSSION, D.A. No. 162. BULK PACKING

Approval has been given for bulk packing the abovementioned fuze in Box P.60 for issue to the Service to replace fuzes No.152 in 3 in. Mortar bombs.

40 fuzes, each in tinned plate cylinder No.162F, will be packed in the box. Stowage dimensions are 19.375 x 12.3 x 5.2 inches.

1273. CARTRIDGE, Q.F. 25 pr. CORDITE, W.M.017. INTERMEDIATE CHARGE INCREMENT (FOR INDIA)

Reference Bulletin No.42, Item 1089. The weight of charge for the abovementioned increment has been increased from 3 oz. 10 dr. cordite WM.017 to 3 oz. 13 dr.

1274. GRENADE, HAND, DRILL, No. 82 PACKING

Reference Bulletin No.43, Item 1131. Approval has been given for 8 No. 82 drill grenades to be packed in Box M.104 Mk.1. Stowage dimensions are 19.3 x 8.2 x 7.6 inches.

1275. SHELL, Q.F., H.E. 12 pr. 12 cwt. "OBSCULESCENT" M. of F. DESIGN

Reference Bulletin No.42, Item 1094 (Page 5). Method of Filling design DD(L)861 of the abovementioned shell fuze No. 45P has been declared "OBSCULESCENT".

1276. SHELL, Q.F. SHRAPNEL. "OBSCULETE" AND OBSCULESCENT".

(1) Shrapnel shell for Q.F. 3 in. 20 cwt. and Q.F. 4.5 in. guns have been declared "OBSCULETE".

(2) Shrapnel shell for Q.F. 3.7 in. gun has been declared "OBSCULESCENT" and re-designated for Practice use.

1277. BOX, AMMUNITION, S.B. M.L. 4.2 in. MORTAR, B.183 Mk. 1.

The abovementioned box for Far East use has been approved and is designed to hold 2 bombs, S.B.M.L. 4.2 in. Mortar. Each bomb is packed in a rolled paper Container No.253 Mk.1 and each Container in a steel carrier No.12 Mk.1 (see Item 1278 below).

The box is of resin bonded plywood suitably tropic-proofed. It is provided with terne plate bindings at the edges and battens on the ends, sides and lid. The lid is secured by 4 snap catches and at each end of the box a wire lifting handle is fitted.

Stowage dimensions are 26.4 x 11.75 x 7 inches.

Marking

The box is painted Service colour and the following particulars are marked on the bottom:- No. and Mark; Contractor's initials or recognised trade mark; Year of manufacture.

1278. CARRIER, AMMUNITION, S.B. M.L. 4.2 in. MORTAR, No.12 Mk.1

The abovementioned carrier for Far East use has been approved and is designed to hold 1 bomb, S.B. M.L. 4.2 in. Mortar in Container No. 253 Mk.1. Two carriers are packed in Box B.183 Mk.1 (See Item 1277 above).

The carrier, of steel, is rectangular in shape and comprises a lid, 2 end plates and a bottom plate.

The lid is provided with a handle and two webbing guides, the latter for use when carrying the carrier slung from the shoulder. It is suitably hinged to one end plate and held in the closed position by a clip secured to the other end plate.

The two end plates are spot welded to the bottom, the latter being prepared with a number of drainage holes.

External dimensions of the carrier are Length 22.85 x Height 5.5 x Width 5.1 inches.

Marking

The carrier is painted Service colour and one end is embossed with the following particulars:- No. and Mark; Contractor's initials. or recognised trade mark; Year of manufacture.

1279. WATERTIGHT SEAL BOXES - INNER LIDS (Fig. 523)

Reference Bulletin No.33, Item 692. Inner lids have been introduced into watertight ammunition boxes to protect the outer sealing lids from damage when the boxes sustain drops on to their lid ends. Early designs of watertight boxes did not provide for the use of these inner lids and under the rough usage of Service many packages have been rendered non-watertight through the loosening of their sealing lids.

In recent designs it has been possible to include a "shelf" or "channel" for receiving the inner lid, but where it has been possible to include an inner lid in an existing package it has to rest on the contents e.g. in Box C.289 the inner lid rests on the upturned bases of the 2 pr. cartridge cases.

Some of the inner lids, more particularly those in narrow boxes such as the C.317, may at first seem troublesome to fit and the following points should be noted :-

- (a) Where a "shelf" or "channel" forms part of the box design it is important to ensure that the inner lid is placed on the shelf or channel.
- (b) The inner lid must be fitted so that the one way hinge (in some instances there are two per lid) connecting the two halves always folds upwards when the lid is withdrawn from the box, but in most cases it is impossible to position it incorrectly.

Fig. 523 illustrates the method of fitting.

ENEMY AMMUNITION

1281. GERMAN FUZE AZ 1
(Fig. 524)

This fuze is of the direct action and graze type with an optional delay of 0.15 seconds. It is used with low velocity equipments as a substitute for the AZ 23 (0,15). The design is similar in principle to the latter fuze but the springs surrounding the centrifugal safety segments and operating the delay shutter are weaker. The fuze may be identified by the stamping "AZ 1" on the flange as illustrated in Fig. 524.

The fuze consists of the following principle components, steel body, light alloy ballistic cap, wooden needle extension, steel needle, creep spring, six light alloy centrifugal segments, a copper covered expanding spring, detent and spring, steel inertia pellet with detonator, plastic holder, delay mechanism, and securing ring.

All steel components are rust proofed.

The body is screwthreaded below the flange for insertion in the shell and is provided with a domed top which is secured by pressing the top of the flange around the side of the dome. The top of the dome is bored centrally in two diameters and bushed to receive the sleeve and needle holder.

The ballistic cap is attached to the fuze body by cannelluring it above the flange and turning its lower edge under the flange. The top of the cap is flat and closed by spinning it over a small disc of the same material.

The wooden rod, 2.3 inches long, forms an extension to the needle under the ballistic cap. Its head is housed in the top of the cap and its lower end is accommodated in a steel sleeve above the needle.

The sleeve protrudes from the top of the dome and its forward movement is limited by a flange which bears against a shoulder in the top of the dome.

The needle is secured in a steel holder which is recessed on its underside to form a seating for one end of the creep spring. The other end of the spring is seated on a shoulder in the inertia pellet. On the underside of the holder are six centrifugal segments each pivoted on a pivot pin.

The segments are kept towards the centre of the fuze by the expanding spring and are so arranged that one, which locks the remainder, is itself locked by a detent with spring which protrudes from the top of the mechanism holder.

The mechanism holder is cylindrical and in two diameters; it is bored centrally to accommodate the inertia pellet. The top of the holder forms a platform for the centrifugal segments; its underside is recessed to accommodate the delay shutter and to provide a flash channel to the delay filling.

The inertia pellet is bored in three diameters to accommodate at the top the needle and creep spring and, at the bottom the detonator which is secured between a paper disc and a cloth or millboard washer at the top, and two steel washers at the bottom.

The delay mechanism consists of a delay holder, sliding shutter, spring, delay setting plug, thin fixed plate and a screwed securing ring. All these pieces excepting the spring are made from light alloy.

The delay holder is provided with two channels, one bored centrally and empty, and the other bored at an angle so that the top is displaced from the centre and the bottom is in communication with the bottom of the central channel. The inclined channel is filled with a pellet of delay composition secured by a screwed ring. A recess in the top surface of the

holder accommodates a centrifugal shutter which, at rest, masks the central channel; it is retained in this position by a light spring. In flight, movement of the plate is regulated according to the position of the delay setting plug. The setting plug is accommodated in an inclined radial channel in the fuze body and is secured by a screwed ring. The outer end of the plug is slotted for setting purposes and also to serve as an index, and its inner end is chamfered to a screwdriver edge. When set for delay action, it retains the shutter in the closed position, when set to non-delay, the chamfered end of the setting plug permits the shutter to slide outwards, under centrifugal action, to unmask the central channel. A fixed thin plate, with two holes corresponding with the delay and central fire channels is fitted on the holder and forms an upper bearing surface for the shutter. The holder closes the bottom of the fuze and is retained by a screwed alloy ring.

Action

Before firing - The needle is separated from the detonator by the centrifugal segments which are retained in the closed position by their spring. The shutter of the delay mechanism closes the central fire channel by the pressure of its spring.

To set the fuze for non-delay action, the slot in the index plug is turned to a position parallel to the axis of the fuze thereby permitting the shutter to slide out under centrifugal action when in flight. For delay action the plug is turned until the slot is positioned at right angles to the fuze axis and in alignment with the stampings "M" and "V 0,5" on the ballistic cap; in this position the plug retains the shutter in the closed position.

On firing - The detent locking the centrifugal segments sets back, the spring surrounding the segments expands, and the segments swing outwards one after the other under centrifugal action thus allowing the needle and inertia pellet free movement towards each other. The creep spring however prevents creep action. If the fuze is set for delay action, the setting plug retains the shutter which masks the central flash channel. If the fuze is set for non-delay action, the position of the setting plug permits the shutter to slide outwards and unmask the central flash channel.

On impact - The needle is forced on to the detonator by direct action. On graze the inertia pellet carries the detonator on to the needle. The flash from the detonator passes either through the central flash channel or the delay channel according to the setting of the fuze.

1281. GERMAN FUZE Wgr Z T (Fig. 525)

This is a direct action and graze fuze with a plastic body and is used in 5 cm, 8 cm and 10 cm H.E. Mortar bombs. The fuze may be identified by the stamping "Wgr Z T" above the flange. An exterior view of the fuze showing stampings is illustrated in Fig. 525.

The principal parts are the body, needle, needle spring, inertia pellet with detonator, a large segment housing a detent arming arrangement, a small segment with an irregular groove, and a base closing plug.

The plastic body is reinforced at its forward end by embedding in it a thin perforated sheet of metal shaped to a cone and joined by a metal clip. The body is bored centrally in three diameters. At the top, two chambers separated by a diaphragm accommodates the needle, needle holder and spiral spring and, below these chambers, another accommodates the fuze mechanism. The top of the fuze is closed by a laminated plastic disc.

The head of the needle is embedded in a plastic holder which has an annular recess on its underside to form a seating for one end of the needle spring. The stem of the needle passes through the diaphragm which also provides a seating for the other end of the spring.

The inertia pellet consists of a white metal detonator holder, upper and lower plastic bushes, creep spring, detonator and plastic washer. The detonator holder is cylindrical, has an internal flange at one end, and is bored centrally in two diameters to form chambers which accommodate the bushes, spring and detonator. The upper bush has an external flange and is inserted in the holder from the bottom so that its smaller diameter protrudes and forms a guide for the point of the needle. It is retained in this position by the spiral creep spring. One end of the spring is seated against the shoulder of the upper bush whilst the other is seated on the shoulder of the lower bush. The lower bush, assembled from the bottom, bears against an internal shoulder in the detonator holder. The detonator is held between the lower bush and a plastic washer which is secured by turning the base of the holder over the washer. A stud on the outside of the pellet engages a groove in the smaller of the two plastic segments surrounding the pellet. Diametrically opposite the stud, the forward end of the pellet is cut away to partly accommodate a ball which locks the pellet in the unarmed position.

The large segment accommodates the arming arrangement which consists of a metal detent, spiral spring, plastic seating disc, steel ball, U shaped spring and a detent catch.

The detent is cylindrical, partly tapered towards a flanged base and has a flat on one side. It is accommodated in the top of a long chamber and its forward movement is limited by the flange which bears against a shoulder in the chamber. The flat retains a ball in a radial hole, thus locking the inertia pellet in the safe position. The detent is retained in this position by the spring which has a seating disc at its base end. A shorter chamber accommodates the inverted U shaped spring and detent catch. The catch is held between the spring and two longitudinal projections formed in the segment.

The base of the fuze is closed by a screwed plug with a transparent disc closing the flash hole.

ACTION

Before firing

The inertia pellet containing the detonator is locked and held away from the needle by the steel ball.

On firing

The detent sets back, and its flange is engaged and held by the detent catch under the action of its spring, thereby freeing the ball and releasing the inertia pellet.

During deceleration, the inertia pellet creeps forward but, through its stud, its movement is controlled by the irregular groove in the small segment. The pellet creeps forward until the upper bush bears against the diaphragm surrounding the needle. Further creep is then prevented by the creep spring.

On impact the needle holder compresses the needle spring and forces the needle on to the detonator.

On graze the creep spring is compressed and the detonator is carried forward by its holder on to the needle. The flash from the detonator passes through the flash hole in the closing plug to the gaine in the shell.

1282. GERMAN FUZE Wgr.Z. 38c
(Fig. 526)

This fuze is of the direct action and graze type and is used in the 8 cm Mortar H.E. bomb. It differs from the Wgr Z 38 fuze described in Bulletin No.24 Item 408 and illustrated in Fig.144, principally in

that it is not fitted with a gaine and that the fuze body at the nose end is reduced in external diameter and enclosed in a steel casing.

The fuze consists mainly of a steel body, nine steel balls, needle, needle holder, creep spring, arming pellet, safety spring and inertia pellet.

The body is bored in two diameters to form a chamber at the head to accommodate the needle holder and another at the base to house the inertia pellet and nine steel balls. The top of the fuze body is closed by a brass disc which is secured by turning the end of the body over it. Attached to the body is a steel casing, in two parts, which surrounds the head and forms a flange to the fuze. The lower part of the case has a pressed screwthread below the flange for insertion in the bomb and the upper part is shaped to suit the external contour of the bomb. The space between the fuze body and casing is void.

The head of the steel needle is secured in a cup shaped light metal holder, and its point is housed in a tubular guide attached to the inertia pellet. The needle holder is chamfered internally and flanged externally at the lower end.

The creep spring, and the light metal arming pellet with a cup shaped bush at the top, surrounds the stem of the needle. One end of the creep spring is seated in the bush whilst the other is seated on the upper end of the needle guide.

The arming pellet is bored in two diameters and provided with an external flange at its base. The smaller boring accommodates the upper end of the needle guide, and the shoulder formed by the large boring forms a seating for one end of the safety spring.

The inertia pellet consists mainly of a body, detonator holder, detonator, needle guide and brass sleeve.

The steel body is cylindrical and, externally, is chamfered at its forward end and provided with a shoulder at its base. It is bored centrally in several diameters to house the detonator holder and the fuze mechanism. The body is secured in the fuze by a steel ring.

The detonator holder has a shoulder at its forward end, and is bored centrally in two diameters to accommodate the detonator in the lower chamber and, above it, the end of the light metal tubular needle guide. The detonator and holder are secured in the pellet by turning its base over a perforated steel disc. A cardboard washer is fitted to the forward end of the holder.

The brass sleeve is split, and three tongues, cut in its side, are bent inwards to form springs.

The nine steel balls are located between the needle holder and the inertia pellet.

ACTION

Before firing - The needle is prevented from coming in contact with the detonator by the nine steel balls.

After firing - On acceleration the arming pellet, needle holder and needle set back compressing the safety spring. The arming pellet is then held by the springs in the sleeve engaging its flange. The needle is prevented from piercing the detonator by the steel balls. During flight, on deceleration, the needle and its holder are returned to their former position by the action of the creep spring, and the balls creep forward into the recess in the needle holder vacated by the arming pellet.

On impact, the creep spring is compressed and the needle fires the detonator. On graze, the inertia pellet carries the detonator on to the needle.

1283. GERMAN NOSE FUZE Kz. C/27 (Im)
(Fig.527)

This is an igniferous nose fuze of the direct action and graze type. It is designed to function on impact through a wooden extension rod or on graze, and is used under the ballistic cap of shell of naval design, for heavy guns. The rod forms an extension to the needle. One end is accommodated in a recess in the nose of the fuze body whilst the other is located in the top of the ballistic cap.

The aluminium body of the fuze is screwthreaded externally at the base for insertion into the shell and recessed internally to take an aluminium needle holder and the graze mechanism.

The needle is of steel and is secured by a steel plug which screws into the needle holder. The needle holder is supported in the body by a brass shearing wire. The stem of the needle is surrounded by a creep spring and the point is accommodated in the top of the inertia pellet.

An aluminium pellet holder with a central flash hole at the base and recessed internally to house the inertia pellet is screwed into the base of the fuze. On top of this holder are five fixed pivots on which are mounted five brass centrifugal segments surrounded by an expanding spring ring of phosphor bronze which maintains them in position overlapping the top of the inertia pellet and preventing it from forward movement.

The inertia pellet which is of steel, brass plated, has a central cavity housing the igniferous detonator and is closed at the base by a paper washer and a brass screwed plug with a central flash hole.

The detonator consists of a copper shell closed at each end by a copper disc .003 inch thick and contains 2.3 grains of composition above .86 grains of glass gunpowder. The composition is made up of mercury fulminate 27.7%, potassium chlorate 38.7%, antimony sulphide 26.9% and ground glass 6.7%.

ACTION

On acceleration the needle is prevented from setting back on to the detonator by the segments and possibly by the shear wire. Centrifugal force set up by the projectile in flight causes the spring ring to expand and permit the segments to rotate clear of the inertia pellet thus leaving the needle and inertia pellet held apart by the shear wire and creep spring. On impact the shear wire is broken; on graze or impact the spring is compressed by the striker being driven in and the graze pellet setting forward. The flash produced by the needle piercing the detonator passes through the flash channel to the gaine of the shell.

1284. GERMAN BASE FUZE 27/34. Wz. 36 (Polish origin)
(Fig. 528)

This base fuze is of the graze type and used in German 3.7 cm A.P. shell of Polish origin. A drawing showing its external contour and markings is included in Fig.528.

The fuze consists principally of a steel body, steel inertia pellet containing detonating composition, brass ferrule, two steel balls, brass arming sleeve, a small and a large stirrup spring, and a felt disc.

The body is in two parts. The rear part is flanged, and screw-threaded externally for insertion in the shell. Internally, it is screw-threaded to receive the front portion, and bored in two diameters to accommodate the fuze mechanism. The front part is screwthreaded

externally at one end for attachment to the rear part, and is tapered to the front to a tubular closed end. The tapered portion is bored radially to form two rows of three holes each. An internal needle is formed in the closed end and is integral with the body.

The inertia pellet is cylindrical with a solid closed base end. Externally, near the base, it is recessed circumferentially, and above the recess are two indents, diametrically opposed, which partly accommodate the two balls.

The pellet contains 0.89 grams of C.E. and a capsule of detonating composition. The copper capsule is cup shaped with a hole in its base which is closed on its inside by a copper disc 0.003 inches thick. Above the disc is a composition, weighing 0.026 grams, and consisting of mercury fulminate 22.0 per cent, potassium chlorate 40.5 per cent, antimony sulphide 33.6 per cent and ground glass 3.9 per cent. Above this composition is a pellet of mercury fulminate weighing 0.57 grams with a thin layer of T.N.T. weighing 0.04 grams on top. The capsule is inserted in the inertia pellet open end first, and secured by turning the end of the pellet over the base of the capsule and varnishing the join.

A felt disc is inserted between the base of the inertia pellet and the fuze body.

The ferrule is cylindrical with an external circumferential recess about its centre.

Near its forward end are two holes, bored diametrically opposite, which partly accommodate the two steel balls. The ferrule surrounds the base end of the inertia pellet and is supported by the smaller of the two stirrup springs.

The stirrup spring is cylindrical, its lower edge has three external projections which fit under the ferrule and its upper edge has three internal projections which engage in the recess near the base of the inertia pellet.

The arming sleeve is cylindrical with a circumferential internal recess near its base edge. It surrounds the forward part of the ferrule and retains the two steel balls locking the inertia pellet in the safe position. The sleeve is supported by the larger stirrup spring.

The stirrup spring is cylindrical and split. Two lugs, cut diametrically opposite in its lower edge, project and fit under the arming sleeve.

ACTION

Before firing - The inertia pellet is locked and held away from the needle by the two steel balls which are retained by the arming sleeve.

After firing - On acceleration, the arming sleeve sets back and is retained by the larger stirrup spring which engages the circumferential groove, thereby freeing the two balls which move outwards under centrifugal action. Creep action is prevented by the smaller of the two stirrup springs.

On impact or graze the inertia pellet moves forward on to the needle and detonates its filling.

1285. GERMAN BASE FUZE Bdz. C/38. (Fig. 529)

This is an igniferous base fuze of the graze type with delay action and is used in shell for heavy guns, the ammunition of which is often of naval design.

The body is of steel, brass plated, and closed at the forward end by a screwed in brass head with a central cavity and flash hole sealed with a brass disc and varnish. The body is screwthreaded externally for insertion into the shell and recessed internally to take the graze mechanism. The head is screwthreaded internally to take a brass plug which holds a screwed brass delay unit at its forward end.

The needle is of steel and is secured by a steel plug which screws into the needle holder. The point of the needle protrudes into the top of the graze pellet. The recess in the fuze body houses a steel platform which carries five centrifugal segments overlapping the top of the brass graze pellet. The segments are encircled by an expanding ring of phosphor bronze which retains them in the overlapping position and thus prevents forward movement of the graze pellet.

The brass graze pellet, which is closed at the base by a screwed in steel plug, houses a detonator holder resting on a fibre washer. The detonator consists of a copper shell closed at the top by a copper disc and at the bottom by a copper disc with a square hole in the centre covered by a paper disc. The filling consists of 1.2 grains of detonating composition over 13 grains of gunpowder. The composition is made up of mercury fulminate 21.3%, potassium chlorate 44.0%, antimony sulphide 34.0% and grit 0.7%.

The delay unit is in the form of a brass plug with a central flash hole in the base and a recess filled with 0.8 grains of pressed gunpowder. An eccentric flash hole leads to a larger recess in the forward end of the unit which contains 1.2 grains of pressed gunpowder. Above the delay unit is a filling of 23 grains of pressed gunpowder contained in a recess in the brass head of the fuze.

ACTION

Centrifugal force set up by the spin of the projectile in flight causes the spring ring to expand and permit the segments to rotate on their pivots thus freeing the graze pellet which, as there is no creep spring, tends to creep forward towards the needle. The detonator is pierced immediately on graze or impact and the flash produced passes through the flash holes in the needle holder to the delay unit.

1286. GERMAN FUZE Zt. Z. S/60 nA Zn (Fig. 530)

This is a mechanical time fuze and is used in the 8.8 cm Flak star shell. The Fuze may be identified by the stamping "Zt.Z.S/60 nA.Zn." just above the flange and can be readily distinguished from other German mechanical fuzes already described, by the low crh of the fuze cap. Its maximum time of running is 60 seconds. The overall length of the fuze is 3.2 inches and it weighs 1 lb. 4 oz.

The body of the fuze is of zinc alloy, and the nose cap, hand race and screwed collar are of light alloy.

The time mechanism is similar to that of the Dopp.Z.S/60 S, described and illustrated in Bulletin No.38, Item 952, but the hand is of light metal and the trigger plunger, supporting the trigger, is engaged in the end of the trigger instead of the outer side.

1287. GERMAN 8.8 cm FLAK STAR SHELL (Fig. 531)

The shell is of the base ejection type and is of conventional design. The filled shell with fuze weighs approximately 20 lb. 6 oz. and its overall length is 15.57 inches. It is fitted with two driving bands and is painted a light green with a black tip immediately below the fuze. The shell is not cannellured for the attachment of the case. The shell examined was stencilled in white "rdf V1. 41". The fuze Zt.Z.S/60 nA is described as a separate item in this Bulletin.

The shell body is formed with a diaphragm at the head end which is bored centrally and screwthreaded to receive a primer. The recess above the diaphragm is screwthreaded to receive the fuze which is secured by a grub screw.

The primer is a hollow screwed brass plug, approximately 0.4 inches internal diameter, with a small hole approximately 0.15 inches in diameter in the base. It contains a perforated gunpowder pellet weighing 0.6 drams resting on a disc of tinfoil. The plug is closed by a tinfoil disc secured by a brass washer approximately 0.3 inches internal diameter.

The ejector charge, accommodated immediately below the diaphragm, consists of two circular bags approximately 3.5 inches in diameter, one is of red shalloon, quilted and stitched to the second which is of white flannel. Both bags contain a total of approximately $1\frac{1}{2}$ drams of gunpowder.

The baffle plate is dome shaped and has a circumferential shoulder formed on its upper edge. It is accommodated, dome upwards, immediately below the ejector charge. The plate is bored with four equidistant holes which communicate between the ejector charge and the star chamber.

A perforated steel ring above a cupped cardboard washer is fitted between the shoulder of the plate and a shoulder at the head of the shell cavity.

Four lengths of quickmatch transfer the flash from the ejector charge to ignite the star. One end of the quickmatch is secured by wax in each of the holes of the baffle plate whilst the other end is secured by wax in the priming pellet in the star.

The star consists mainly of a steel cylinder, steel disc, belt, swivel, asbestos fibre tube, steel washer, cardboard washer, nut, priming composition and star composition.

The cylinder is closed at the base end by a steel disc which is screwthreaded to receive the bolt and is partly closed at the top by a steel supporting washer and a cardboard washer.

The bolt head supports the swivel, and is screwthreaded under the head to suit the steel disc. The belt is passed through the centre of the star which is lined with an asbestos fibre tube and is secured by its nut to the steel supporting washer.

The star composition, weighing approximately 2.2 lb. consists of two cylindrical pellets with a central perforation through which the bolt passes. The first 0.1 inches of the pellet, at the open end, consists of composition mixed with grained gunpowder. This is primed by means of four pellets, each weighing 1.5 grams, surrounding the ends of the quickmatch. Beneath each pellet is a conical hole containing 0.2 grams of loose priming composition.

The star has a time of burning, at rest, of approximately 23 seconds, and a light intensity of approximately 375000 candles.

The compositions, as found by analysis consists of.

	Per cent		
	Main filling	Priming Pellets	Intermediate priming
Magnesium	33.7	1.4	70.8
Barium nitrate	47.3	-	1.2
Sulphur	14.9	6.6	1.9
Grease	2.9	8.3	4.2
Potassium nitrate	-	68.5	17.9
Charcoal	-	15.2	-
Nitrocellulose	-	-	4.0
Residue (insol.)	1.2	-	-
	100.0	100.0	100.0

Parachute

The parachute is 22 inches in diameter and has a vent 2 inches in diameter at the top. It consists of 8 sections of flax fabric sewn together and reinforced along the seams by means of linen tape. Two other circular bands of tape strengthen the parachute, one around the circumference and the other about 3 inches from the circumference.

There are eight shrouds consisting of four lengths of steel cable, which are looped through the swivel attached to the star, so that the shrouds diametrically opposite are continuous cable. Each end is passed through a steel eyelet in the circumference of the parachute where it is knotted and then passed through five more eyelets situated in the radial seam of the parachute. Another steel cable extends from the swivel to the vent of the parachute where it is tied to the crossed cable. Other steel cables passed along the circular strengthening tapes in the parachute and are knotted to the radial cables where these crossed.

The parachute is accommodated in two steel collar segments which line the shell cavity. The segments support the star container. A cupped cardboard washer is inserted between the parachute and star container.

The base of the shell is closed by a steel plug with a shoulder which fits against an internal shoulder in the shell cavity. It is secured by four equidistant radial copper shear pins. The shearing of these pins by rotational action is prevented by three steel twisting pins inserted longitudinally between the rim of the plug and the shell body. The base of the plug is bored centrally and screwthreaded to enable a tracer to be fitted.

ACTION

The ignition of the ejection charge is initiated by the fuze through the primer. Pressure set up on the baffle plate is transmitted through the star cylinder and parachute protecting segments to the base plug thereby causing the shearing pins to break and the whole to be ejected. At the same time, the quickmatch is ignited and after a short interval which allows time for the parachute to open, ignition of the star composition takes place.

1288. GERMAN 10 cm LFH.18 HOLLOW CHARGE SHELL
(10 cm Gr 39 rot H1/A, H1/B and H1/C.)
 (Fig. 532)

These shell are fired from the 10.5 cm. gun howitzer (10 cm. LFH.18). The differ mainly in the filling, shape of the

hollow cavity in the bursting charge and the method of securing the cap, as illustrated in Fig. 532. The overall length of the shell with fuze is 19.75 inches.

The fuze "AZ.38" used in each is described in Bulletin No.33, Item 741, and the gaine "Zundladung 41" is described in Bulletin 43, Item 1161.

Shell design "H1/A"

The weight of the shell filled and fuzed is 26 lb. 14 $\frac{1}{2}$ oz. The wall of the shell is comparatively thin, and the cavity for the bursting charge tapers towards the base. An internal screwthread is formed at the front end to receive the base of the cap which is secured by a rivet. The cap is of greater crh than that of the shell of original design. The single driving band is 0.59 inches wide and of the ferrous type.

The bursting charge, indicated by the numeral "95" stencilled on the shell body, is cyclonite, T.N.T. and wax, the percentage of each being approximately 57, 40 and 3 respectively. It weighs 3 lb. 4 oz. 9 dr. and is in three blocks. The blocks are contained in a waxed paper carton and are secured to the shell by a bituminous composition lining the walls. A blue label, printed in black, and affixed to the carton, reads as follows.

Sprengladung
der 10 cm Gr 39
H.5 (SH) krl 1941
Fp 02 (unkr) elg 1941
rdf 95 93/1941

A central channel, in two diameters, is formed in the blocks to accommodate the gaine in the base and above it an aluminium tube approximately 0.4 inches in diameter. The top block is formed with a coned cavity in which is fitted a steel liner. The liner is attached to the upper end of the tube. Two plastic washers are fitted between the top of the liner and an internal shoulder in the cap.

Perforation of Armour Plate

The estimated perforation of homogeneous armour is 110 mm. at the normal and 95 mm. at 30 degrees to the normal.

Shell design "H1/B"

The weight of the shell filled and fuzed is 26 lb. 10 oz. The shell body and cap is similar to the "H1/A" excepting that the cap is secured by a screw.

The bursting charge, as indicated by the numeral "91" stencilled on the shell body is cyclonite/wax (95/5). It weighs 3 lb. 4 oz. 9 dr. and is in three blocks. The charge, which does not extend into the cap, is contained in a paper carton which is secured to the wall of the shell cavity by a bituminous composition. A label, similar to that on the H1/A charge, is affixed to the carton and reads as follows -

Spreldg
d. 10 cm. Gr 39 H1/B
versch H.5 42
cwg 91 541/42

A central channel, in two diameters, is formed in the blocks to accommodate the gaine in the base, and above it an aluminium tube. The top block is formed with a saucer shaped cavity in which is fitted a steel liner. The tube is approximately 0.71 inches in diameter, and the liner is attached to its upper end. The cap is screwed on to the body metal to metal, and there were no plastic or cardboard washers fitted.

Perforation of Armour Plate

The estimated perforation of homogeneous armour is 130 mm at the normal and 110 mm at 30 degrees.

Shell design "H1/C"

The weight of the shell filled and fuze is 26 lb. 13 oz. The bursting charge, cavity liner and aluminium tube are similar to those in the "H1/B" shell except that the top half of the shell cavity and carton was coated with bituminous composition and the lower half with oxychloride cement, and the label read "43" for "42" and "55/43" for "541/42". A steel flanged hollow frustrum, weighing 8 oz. 5 dr. with a cardboard washer stuck to the upper side of the flange, is fitted above the liner. It is secured between the shoulder in the shell body and the base of the cap.

FIG. 514 (ITEM. 1256.)
FLOAT SMOKE 50 LBS. MK. I.

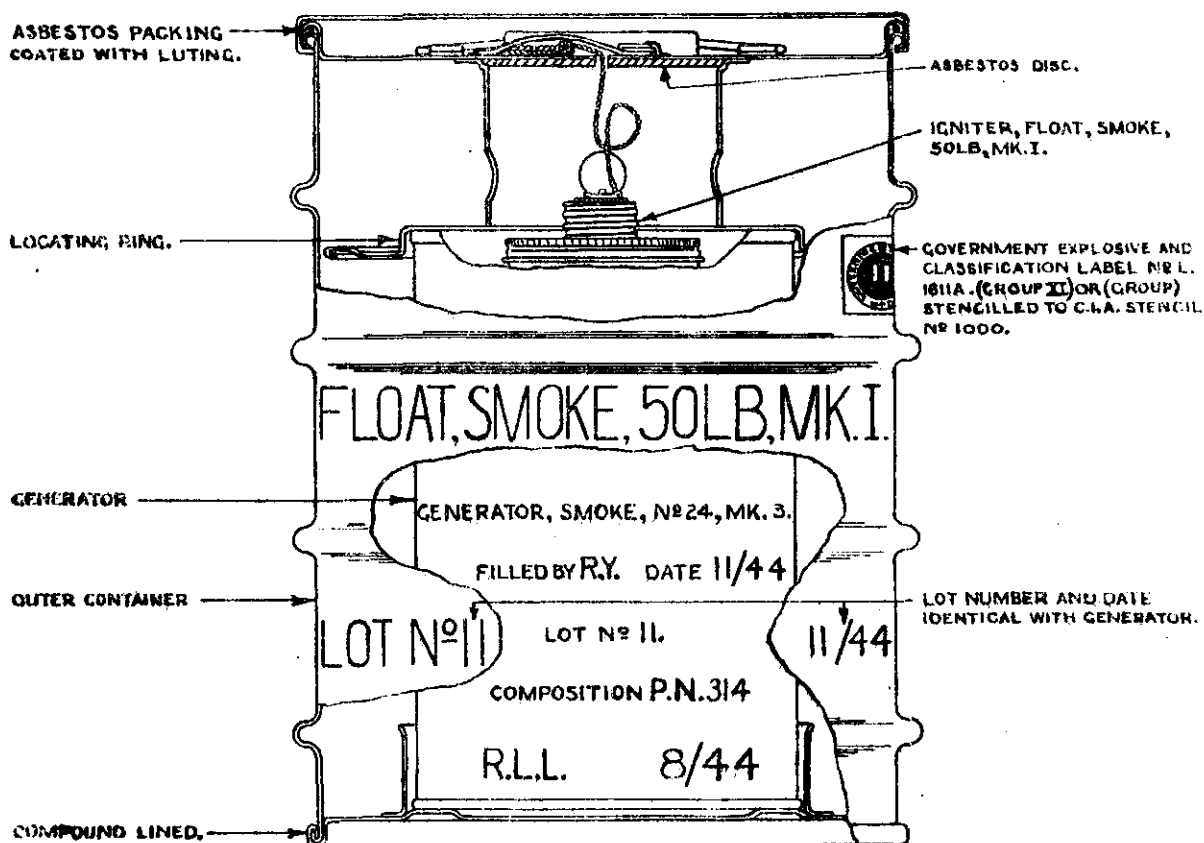
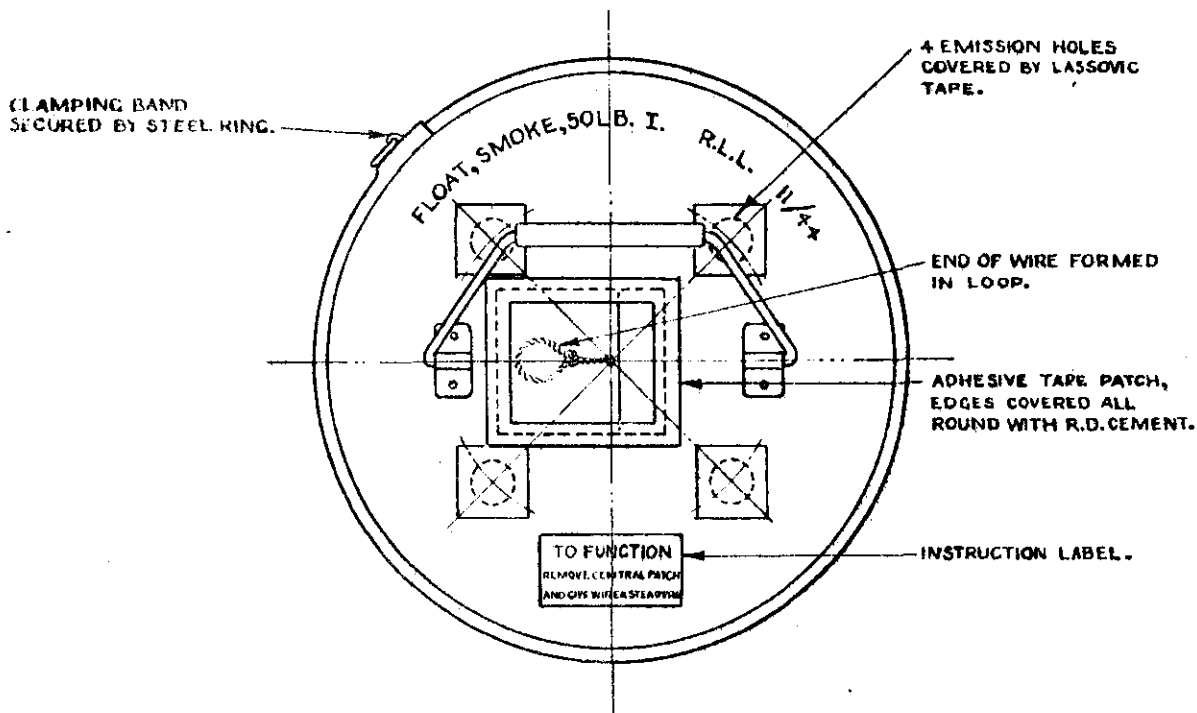


FIG. 515. (ITEM 1256)
GENERATOR SMOKE N° 24 MK 3. SHOWING DETAILS OF
ASSEMBLY FOR FLOAT SMOKE 50LBS. MK.1.

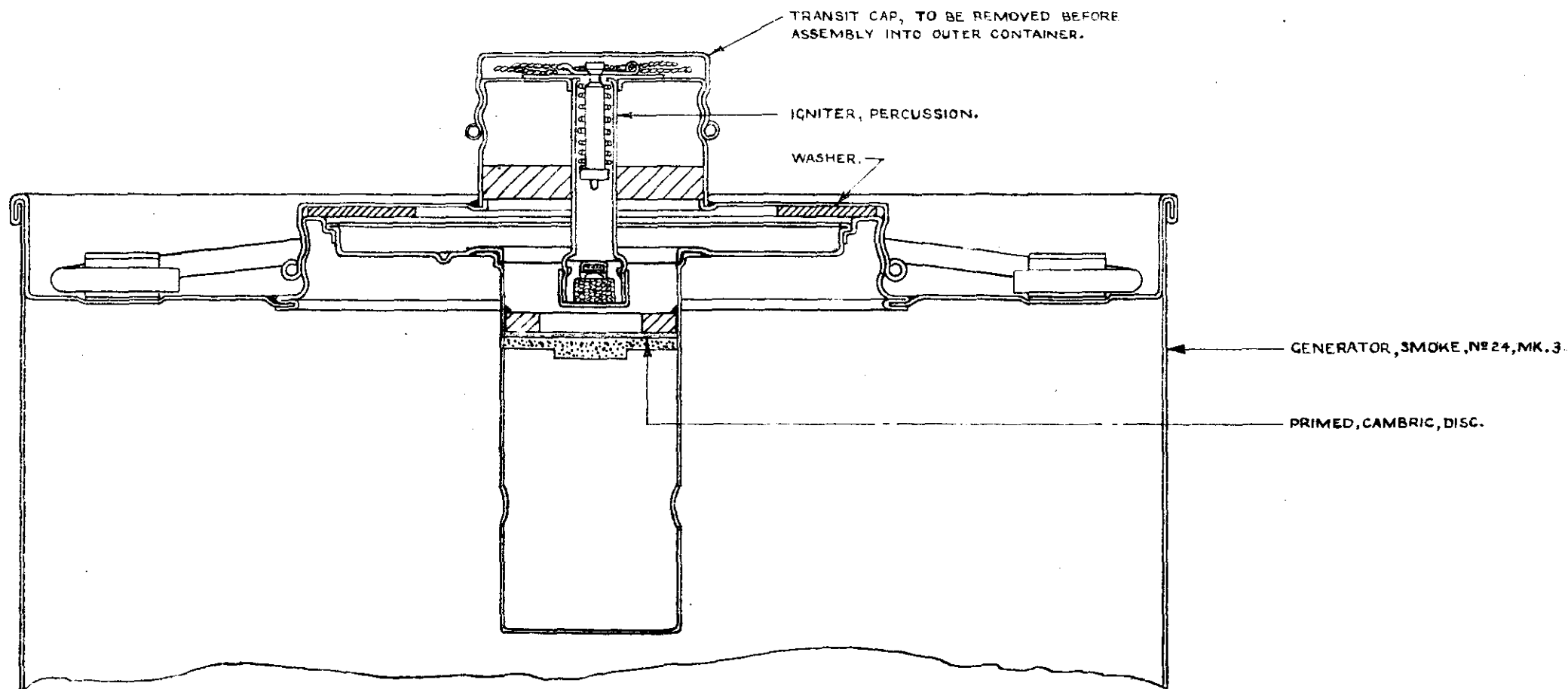


FIG. 516 (ITEM.1256)
FLOAT, SMOKE 50 LBS. MK.2.

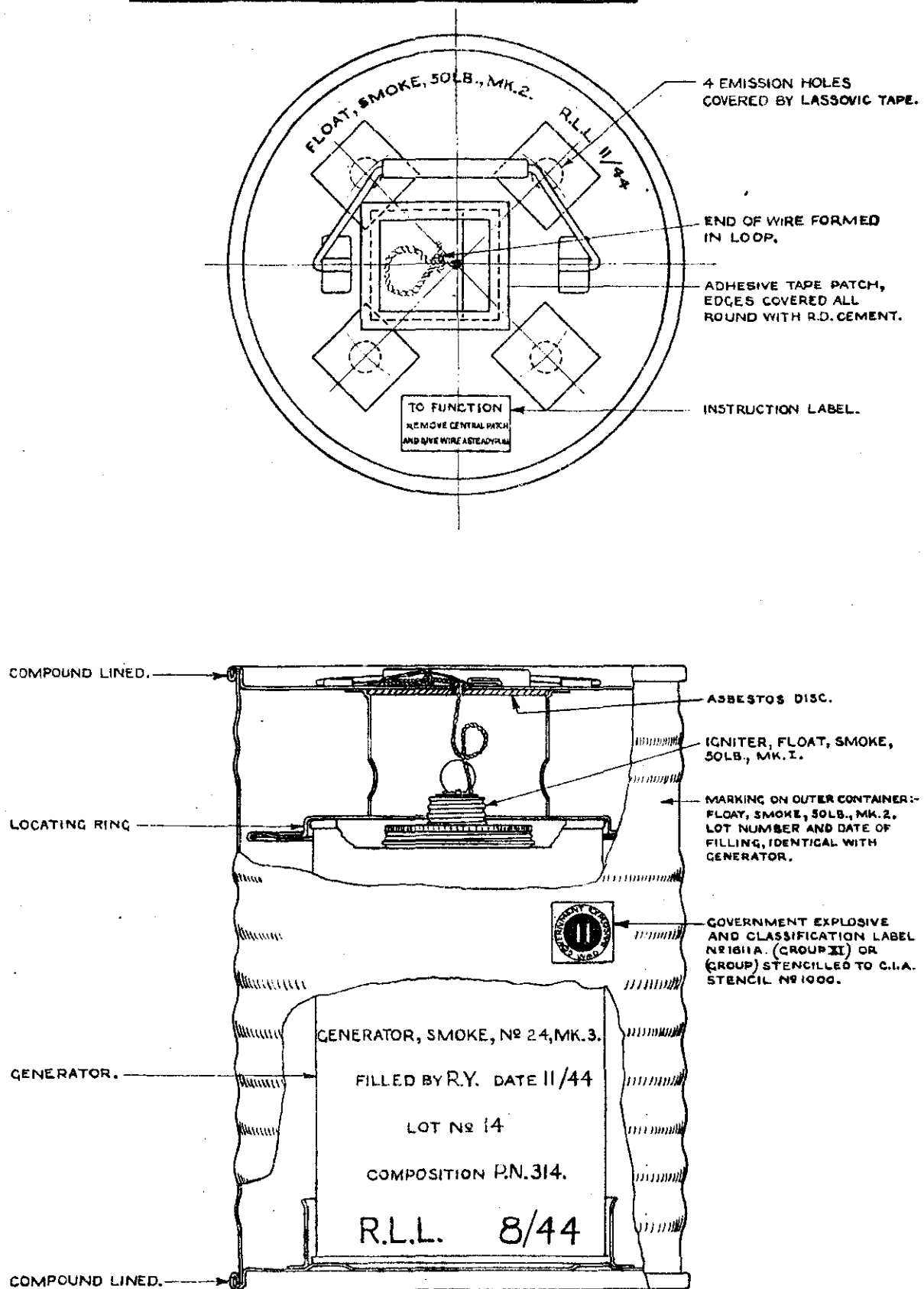
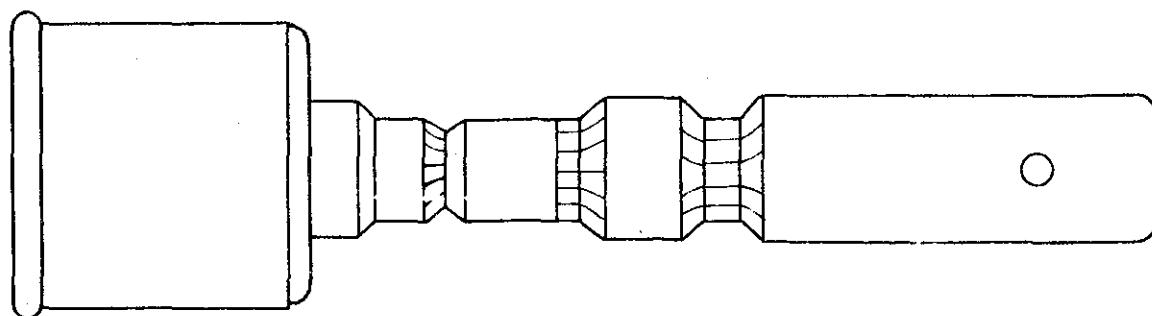
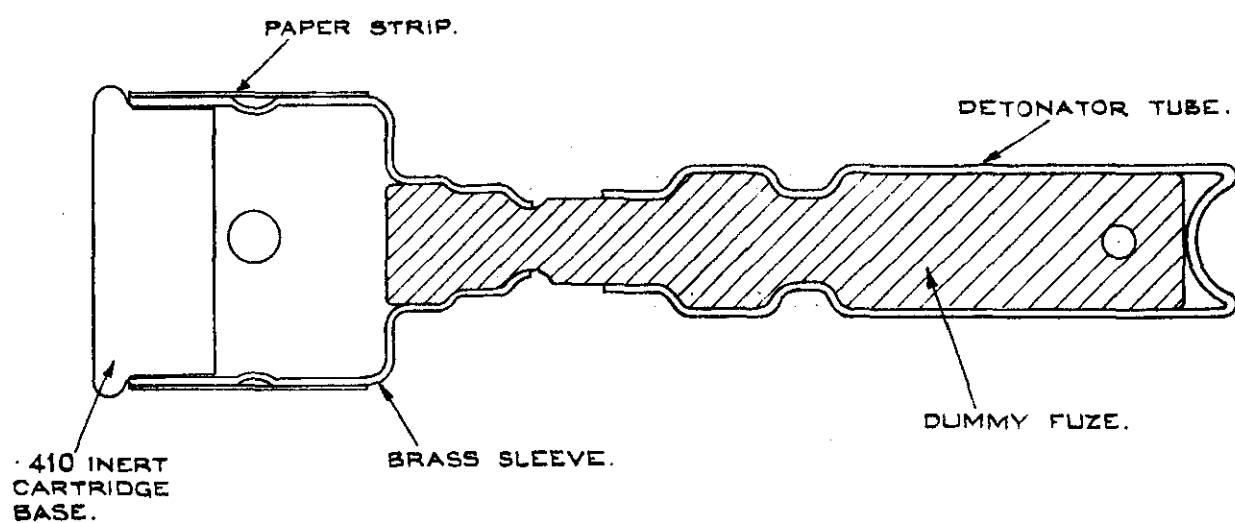


FIG. 517 (ITEM 1257.)
INSTRUCTIONAL IGNITER, N° 74. GRENADE, MK. 2.



ASSEMBLED IGNITER.

FIG. 518. (ITEM 1258.)
KEY, N° 224 MK 1.
(For use with Fuze N° 213.)

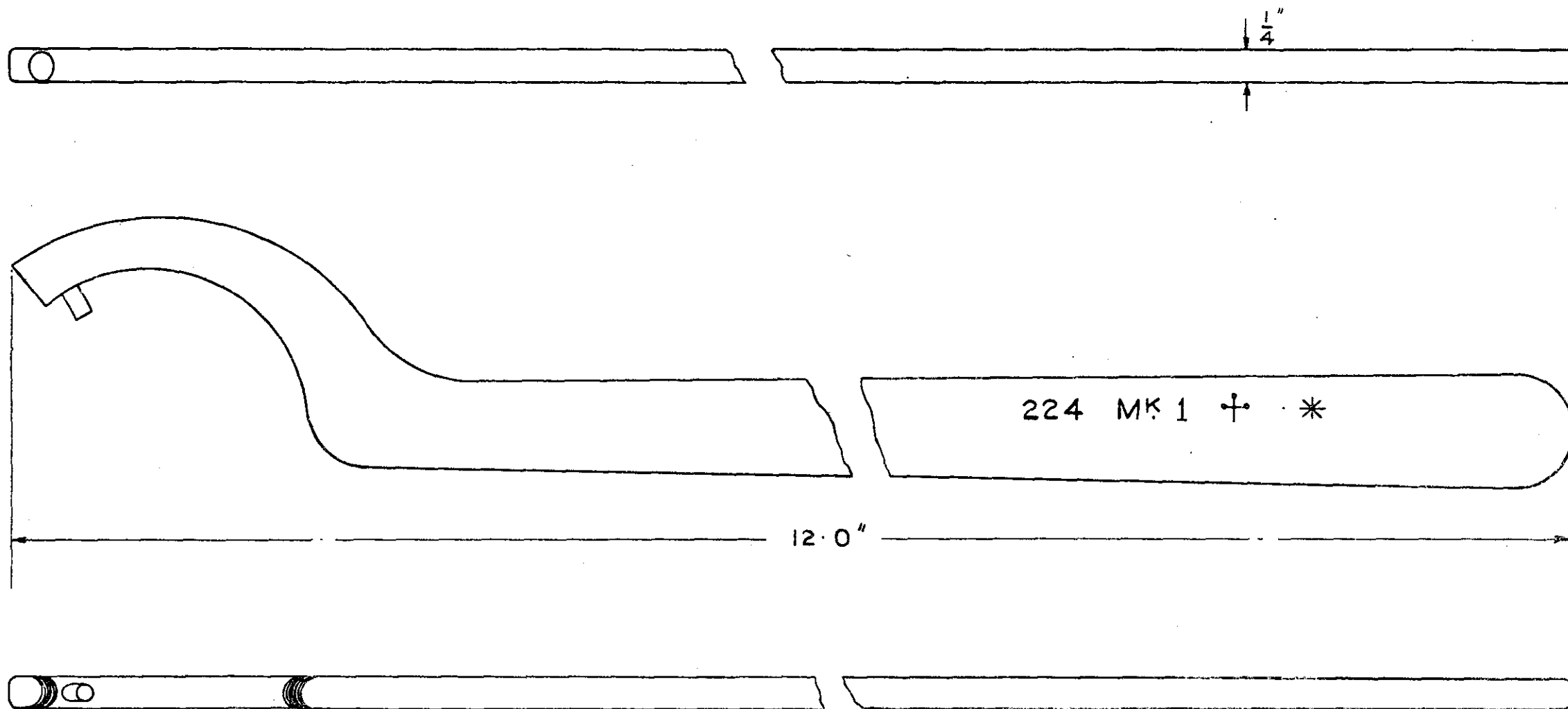


FIG. 519 (ITEM 1259)
 SHELL, Q.F. H.E. 6 PR. MK. 10.T.
M.O.F. (D.D.(L) 18768).

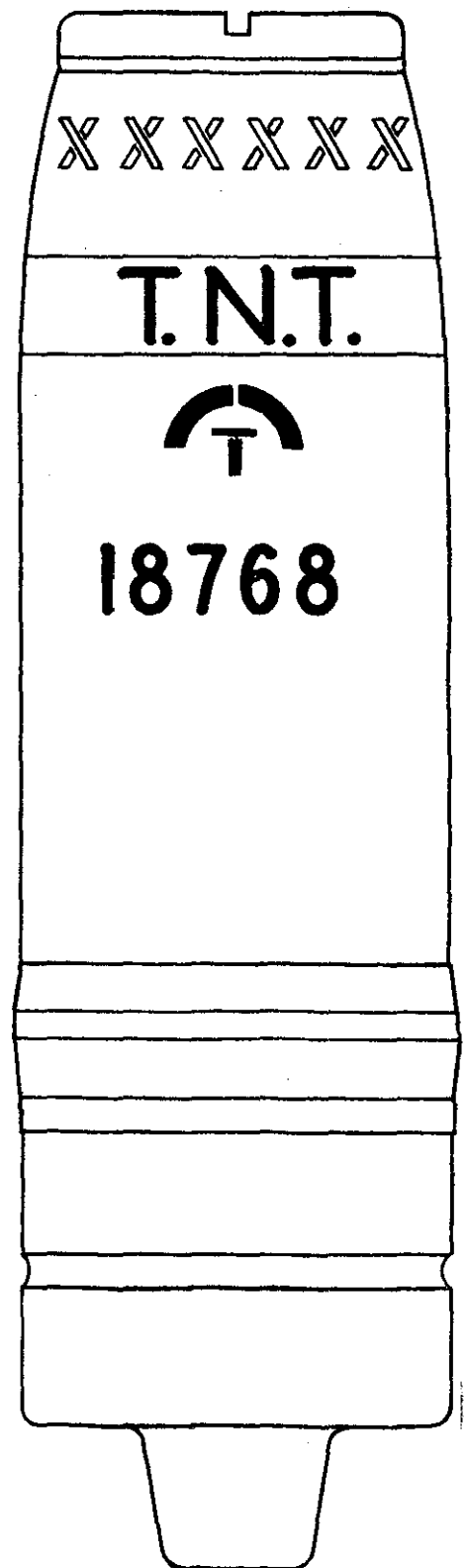
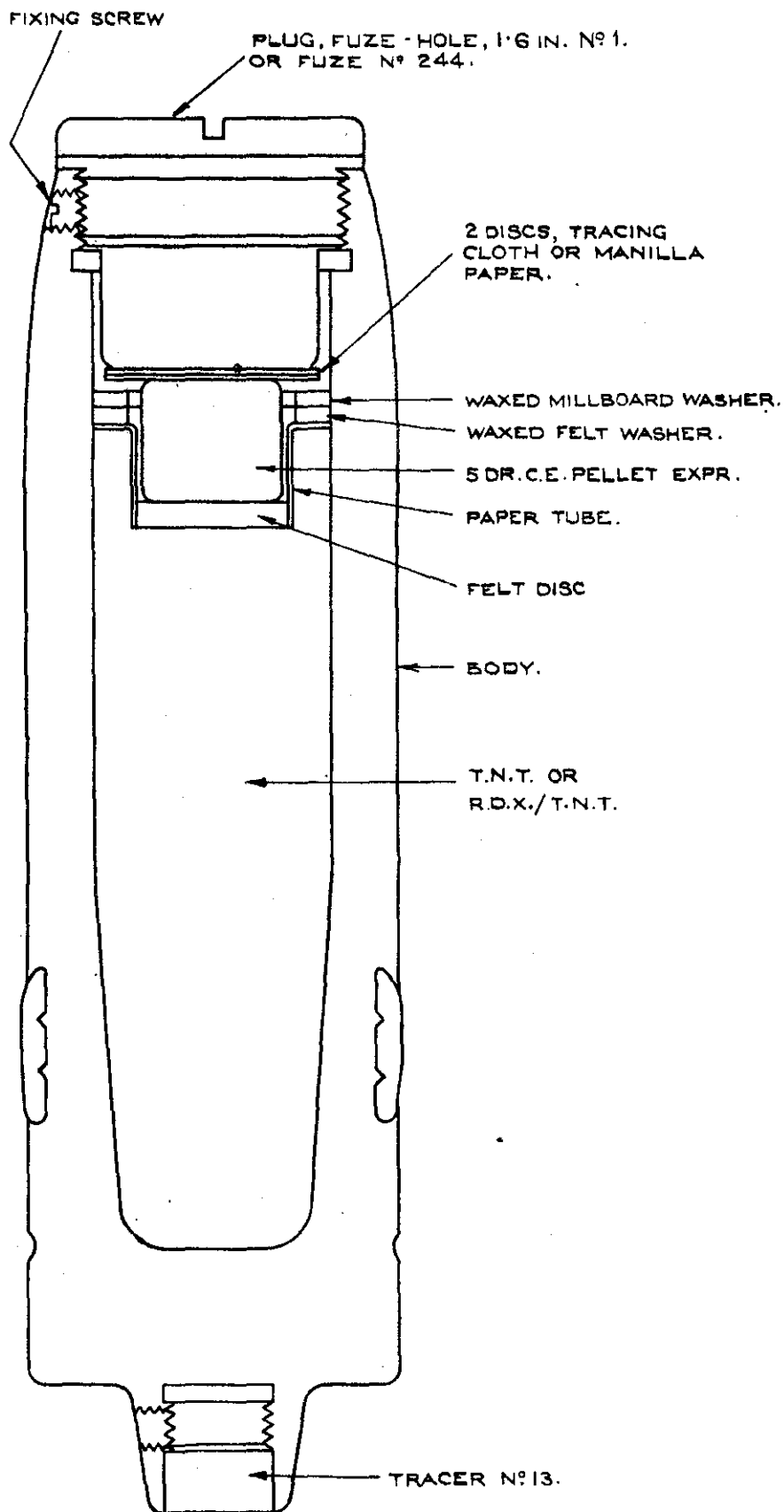


FIG. 520. (ITEM. 1260.)
IGNITER, ELECTRIC, N° 88 MK. 2.

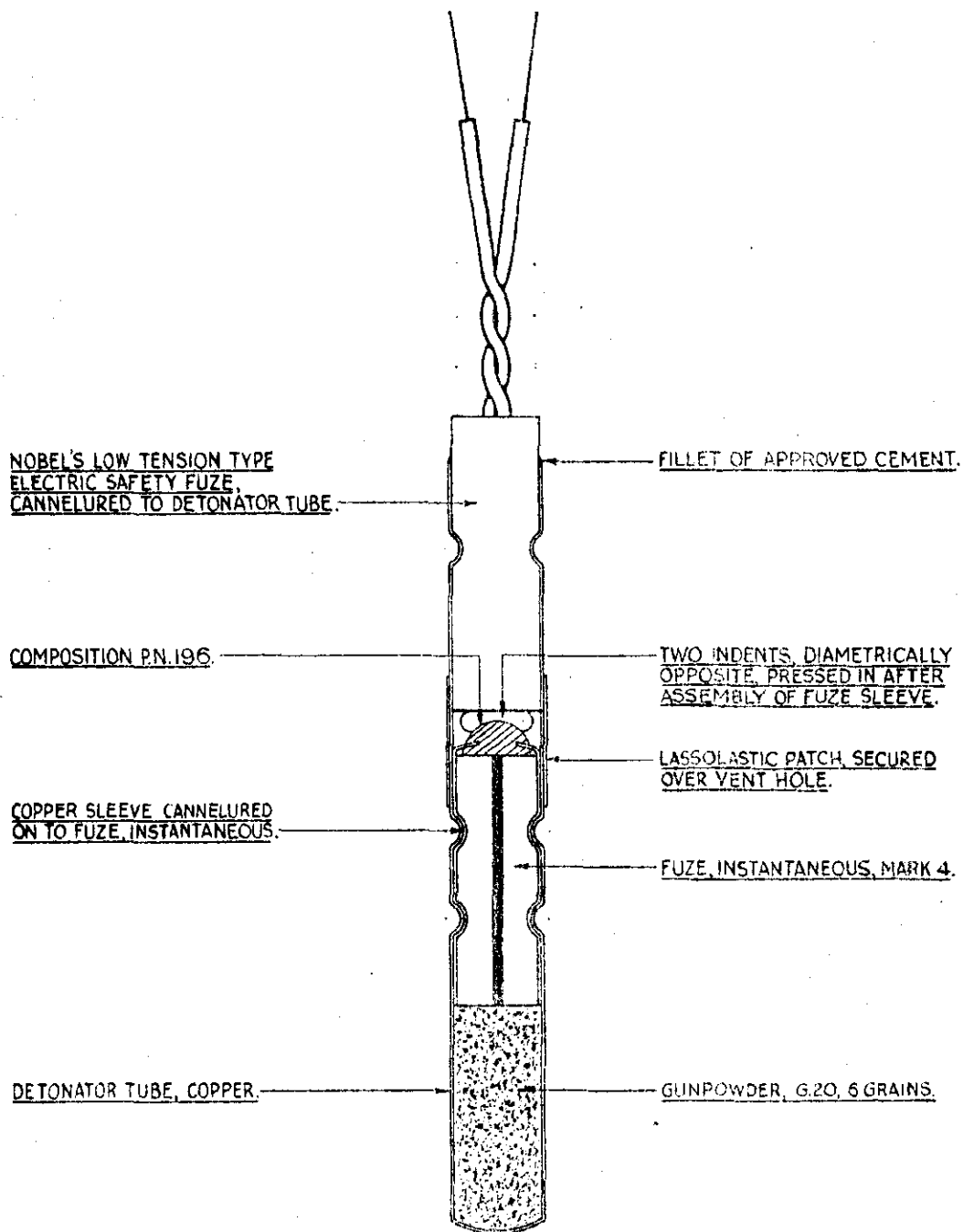


FIG. 521. (ITEM.1261.)
IGNITER N° 90 MK.2.

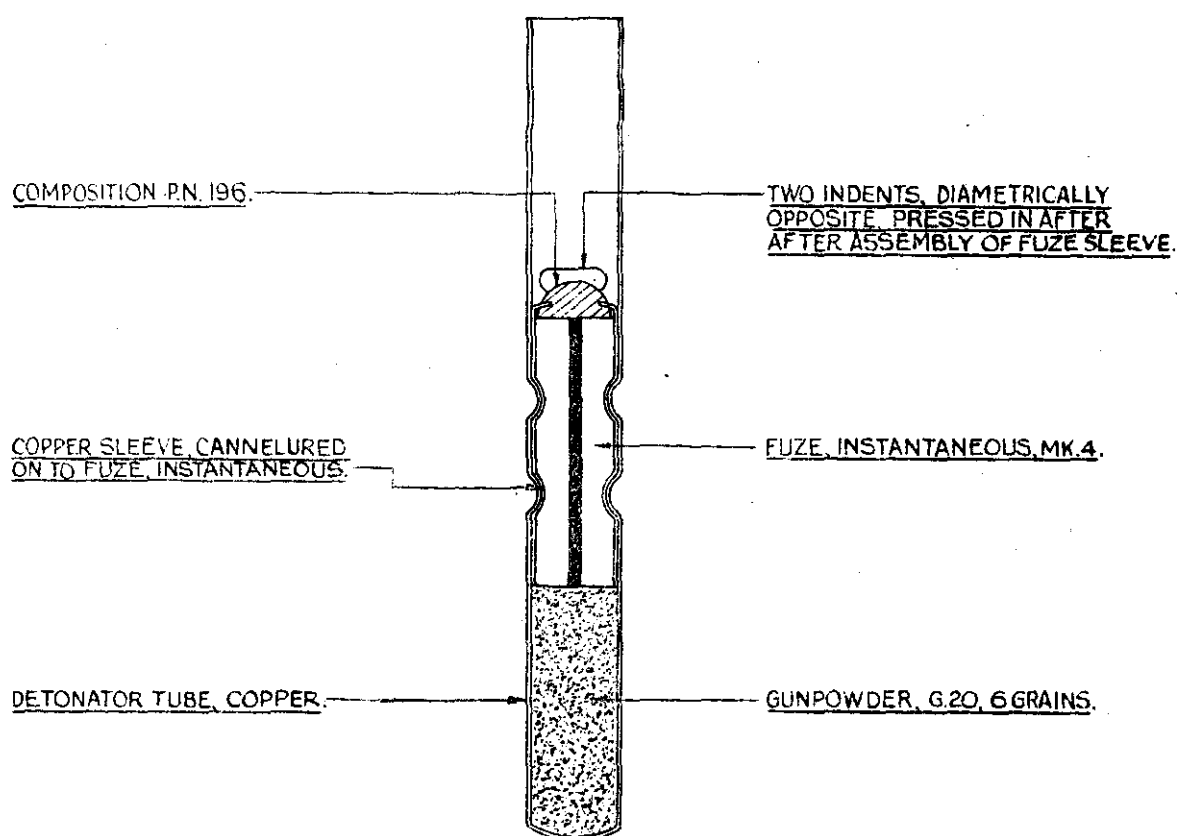


FIG. 522 (ITEM. 1268.)
BOMB, SIGNAL, PIN - TAIL MK. I.

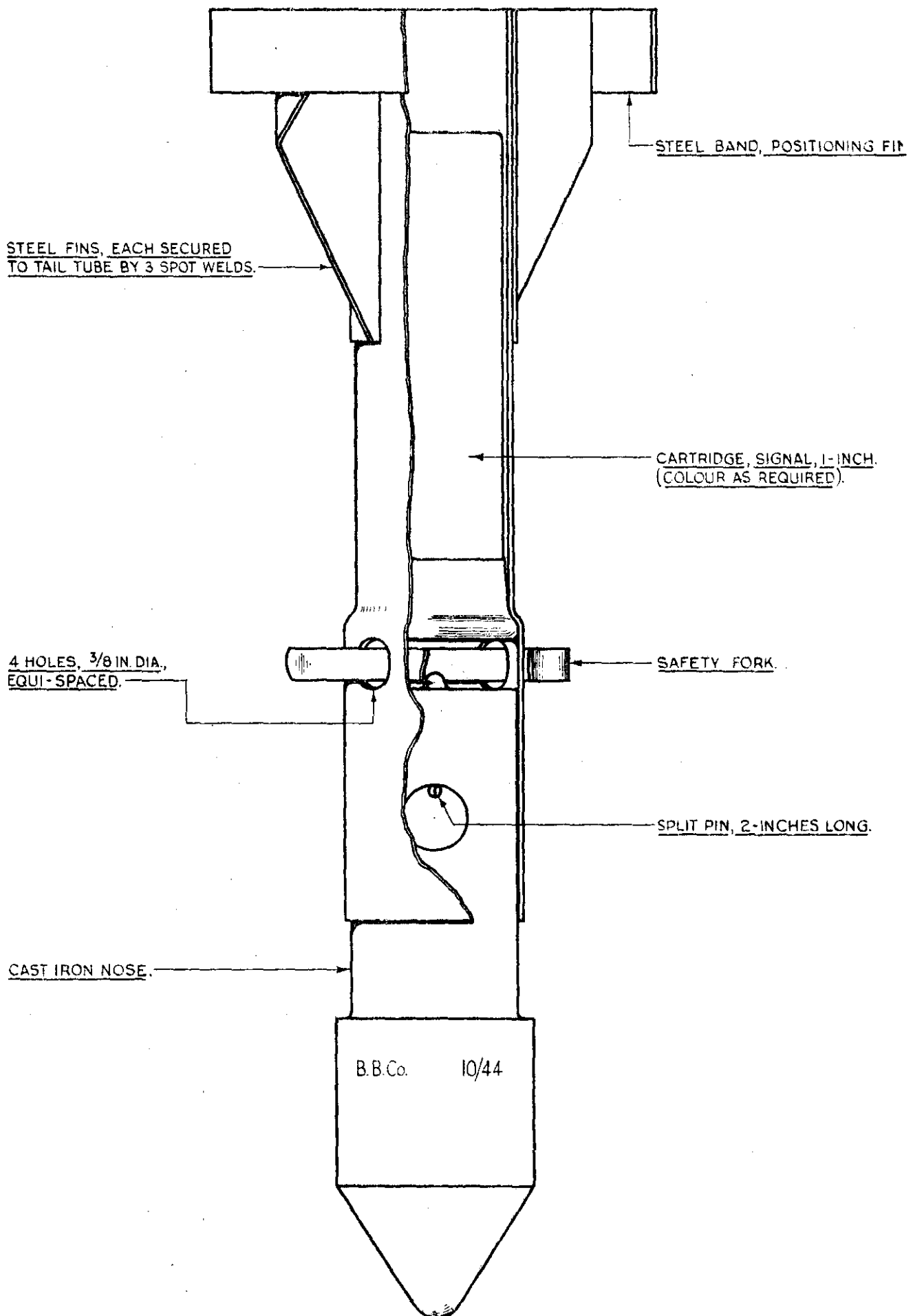
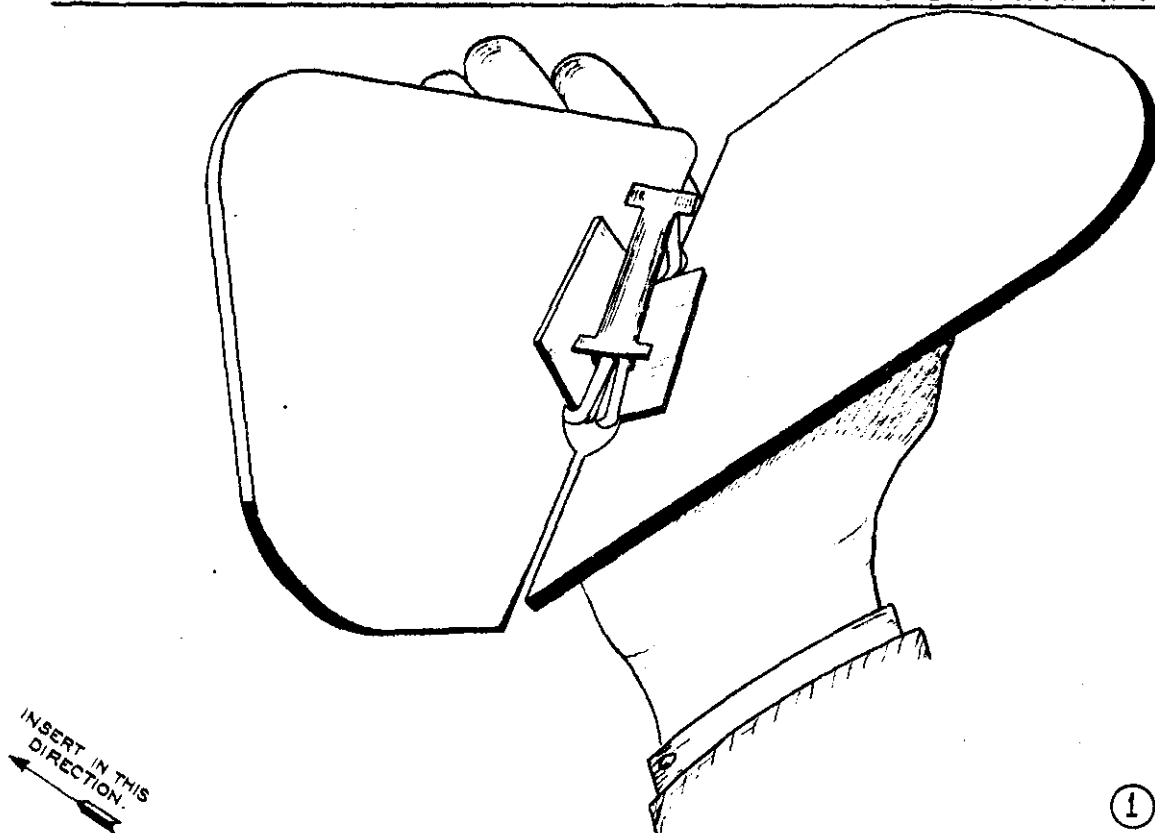
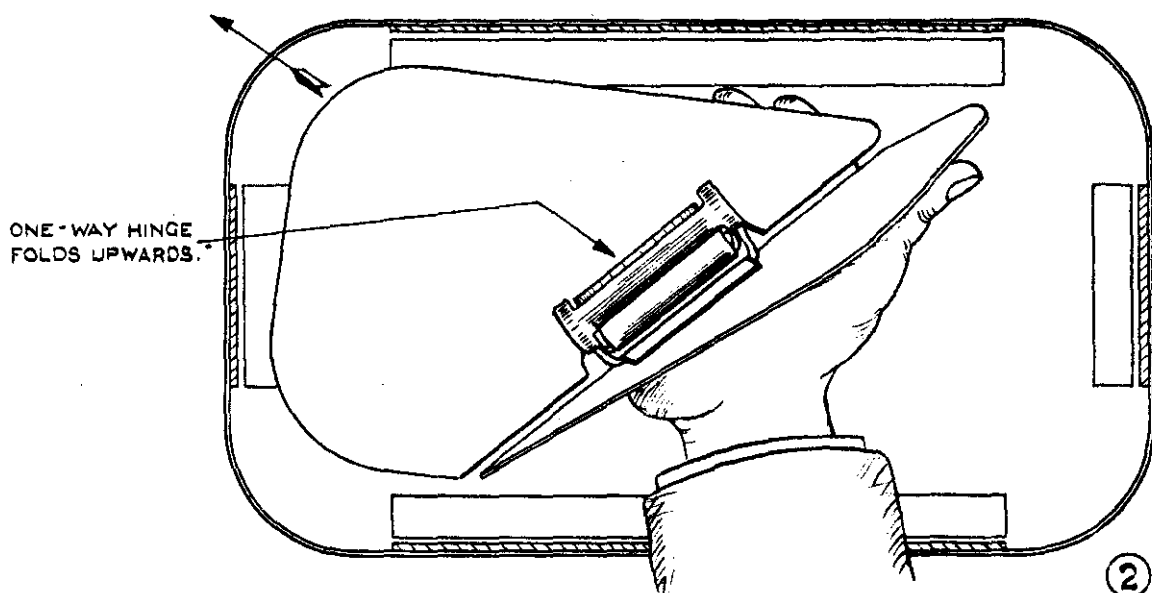


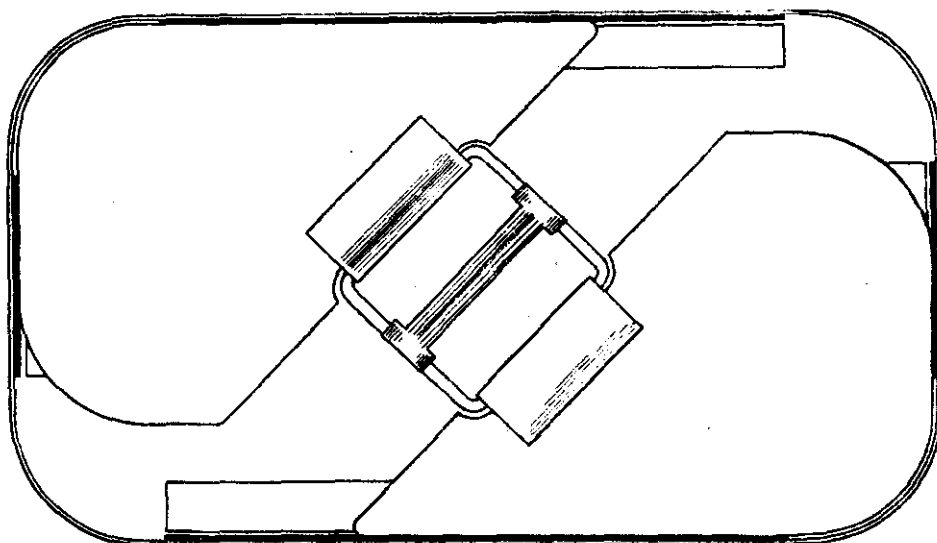
FIG. 523. (ITEM 1279.)
WATERTIGHT STEEL BOXES. METHOD OF INSERTING INNER LID.



METHOD OF HOLDING INNER LID BEFORE INSERTING.

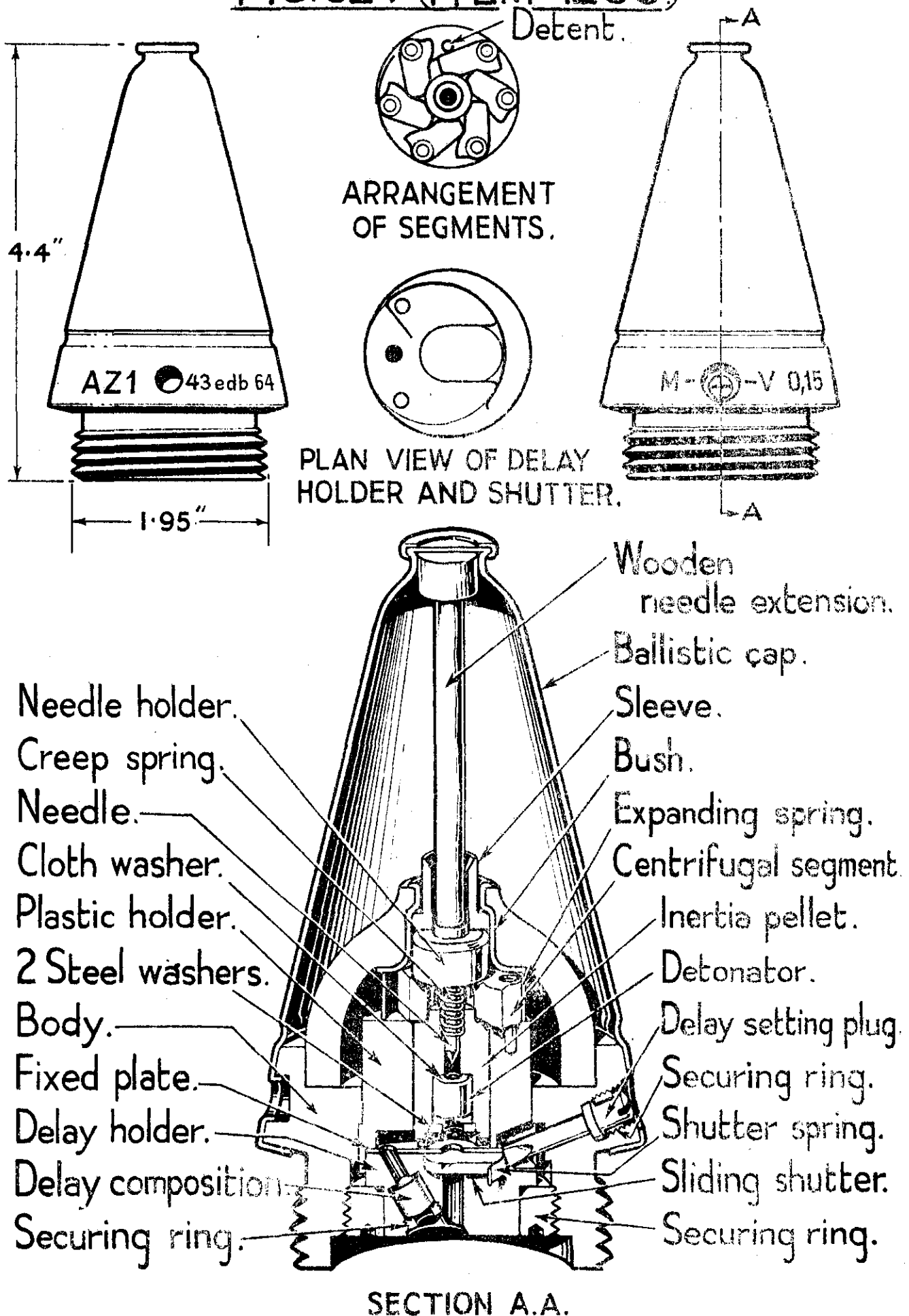


SECTIONAL VIEW WITH BOX LID SUPPORT REMOVED.



INNER LID IN FINAL POSITION.
(View with box lid support removed.)

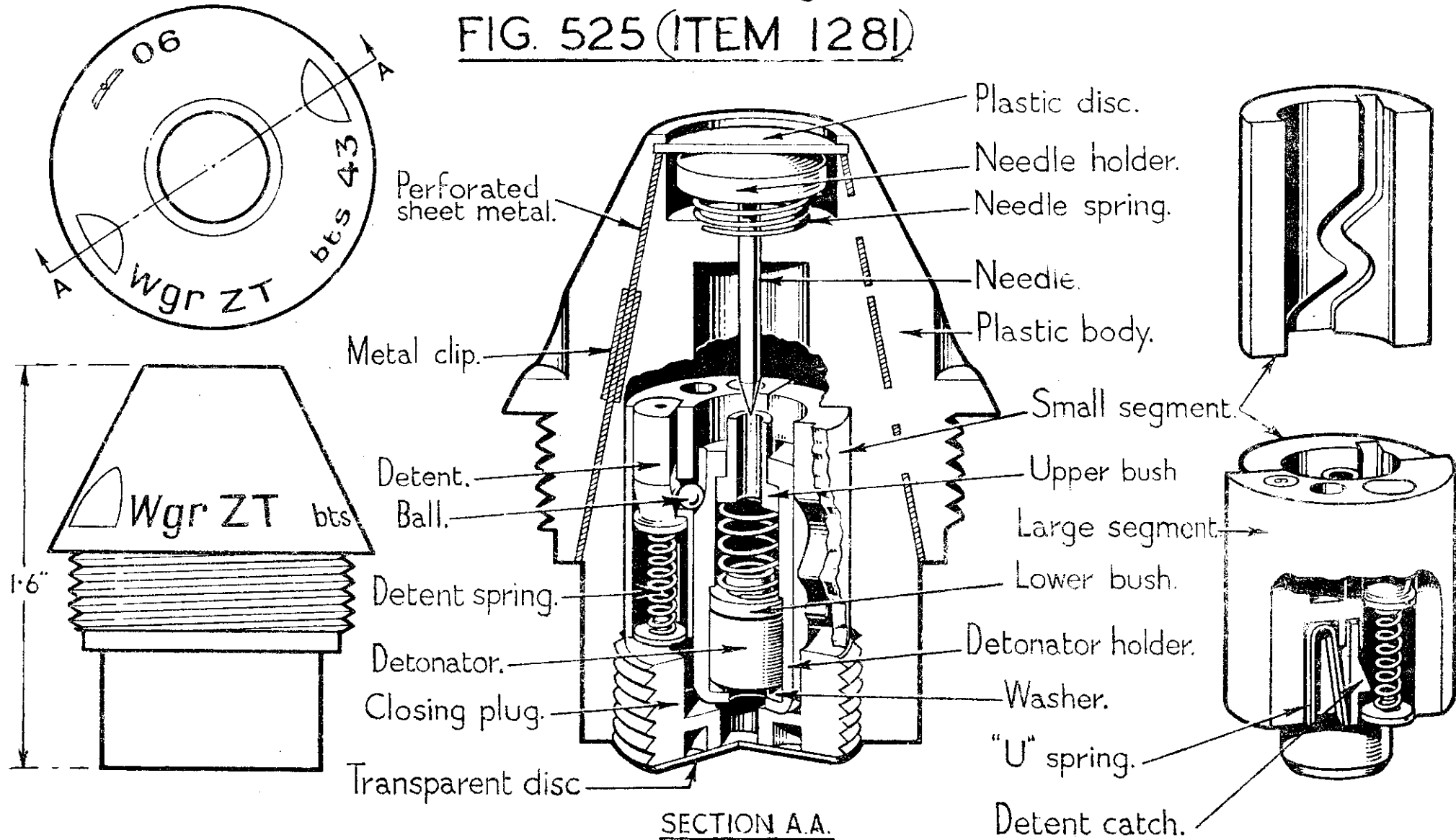
GERMAN FUZE AZI.
FIG. 524 (ITEM 1280)



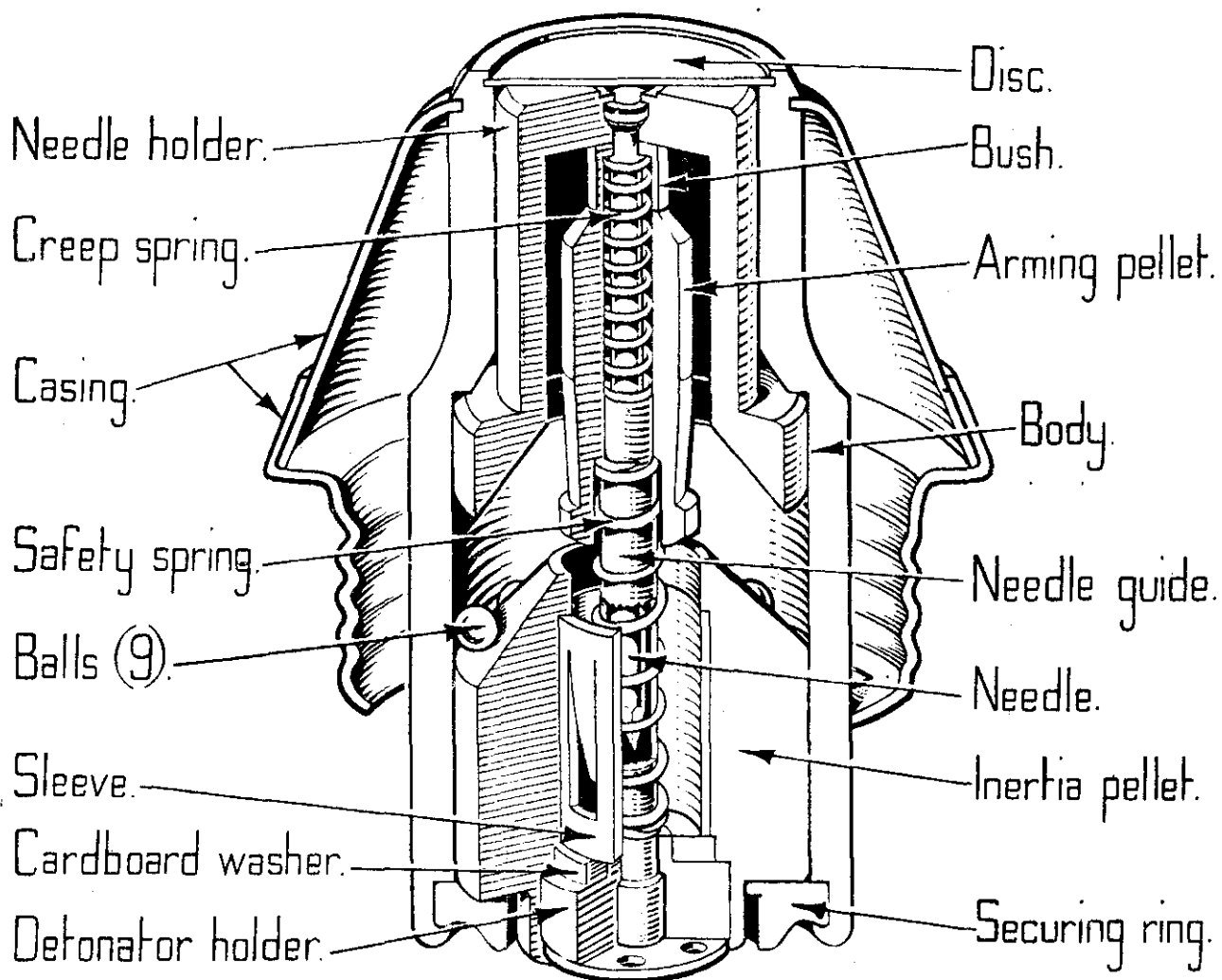
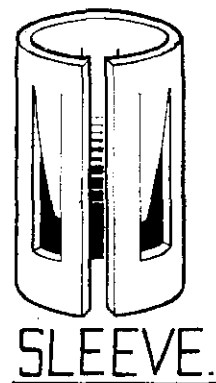
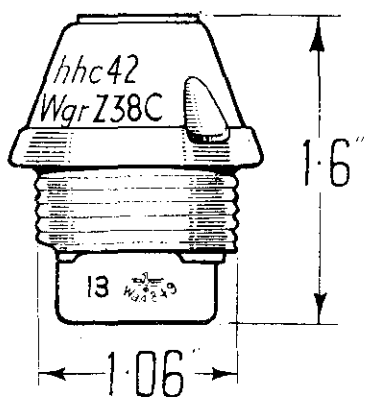
SECTION A.A.

GERMAN FUZE Wgr. Z T.

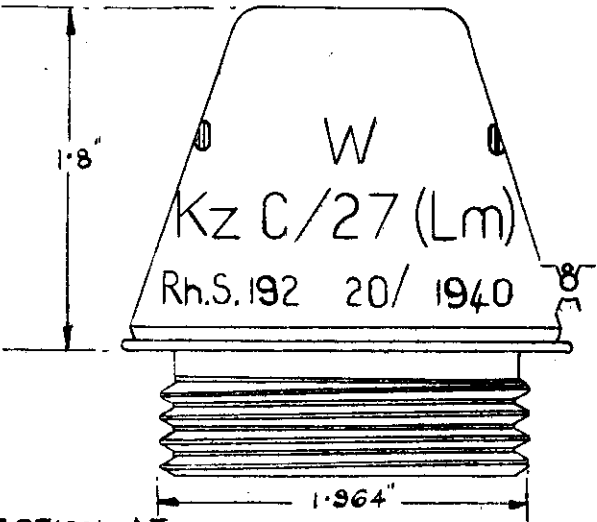
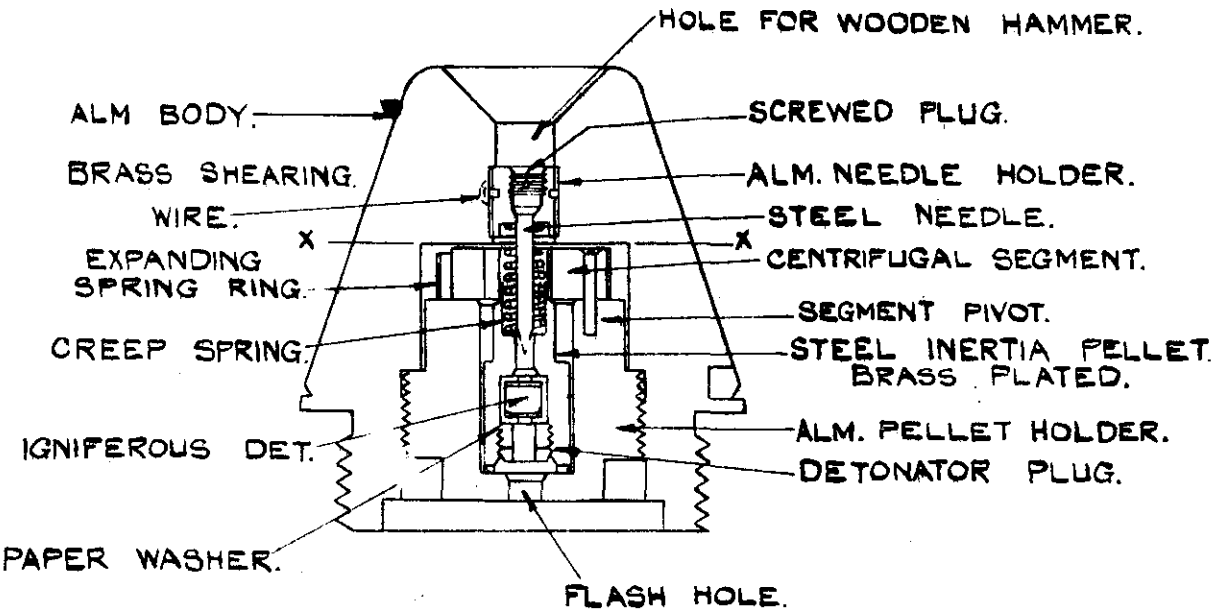
FIG. 525 (ITEM 1281)



GERMAN FUZE W_{gr} Z 38C.
FIG. 526 (ITEM 1282)

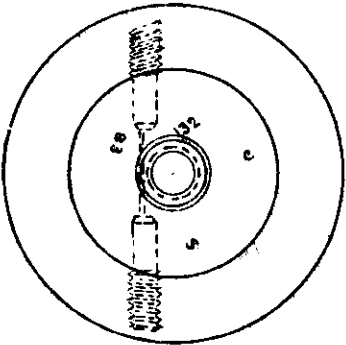
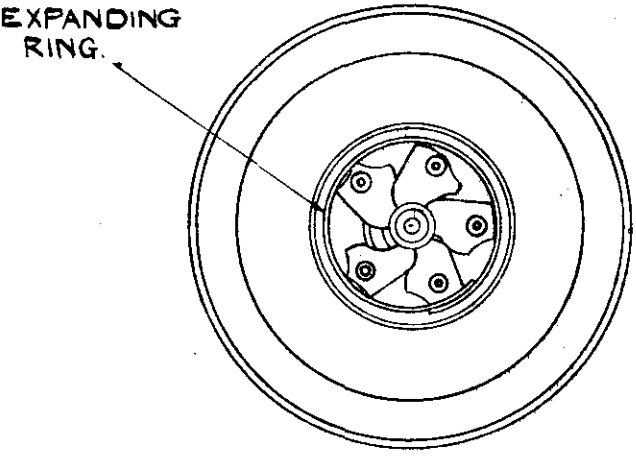


GERMAN FUZE K.Z.C/27 (Lm.) FIG. 527 (ITEM 1283)



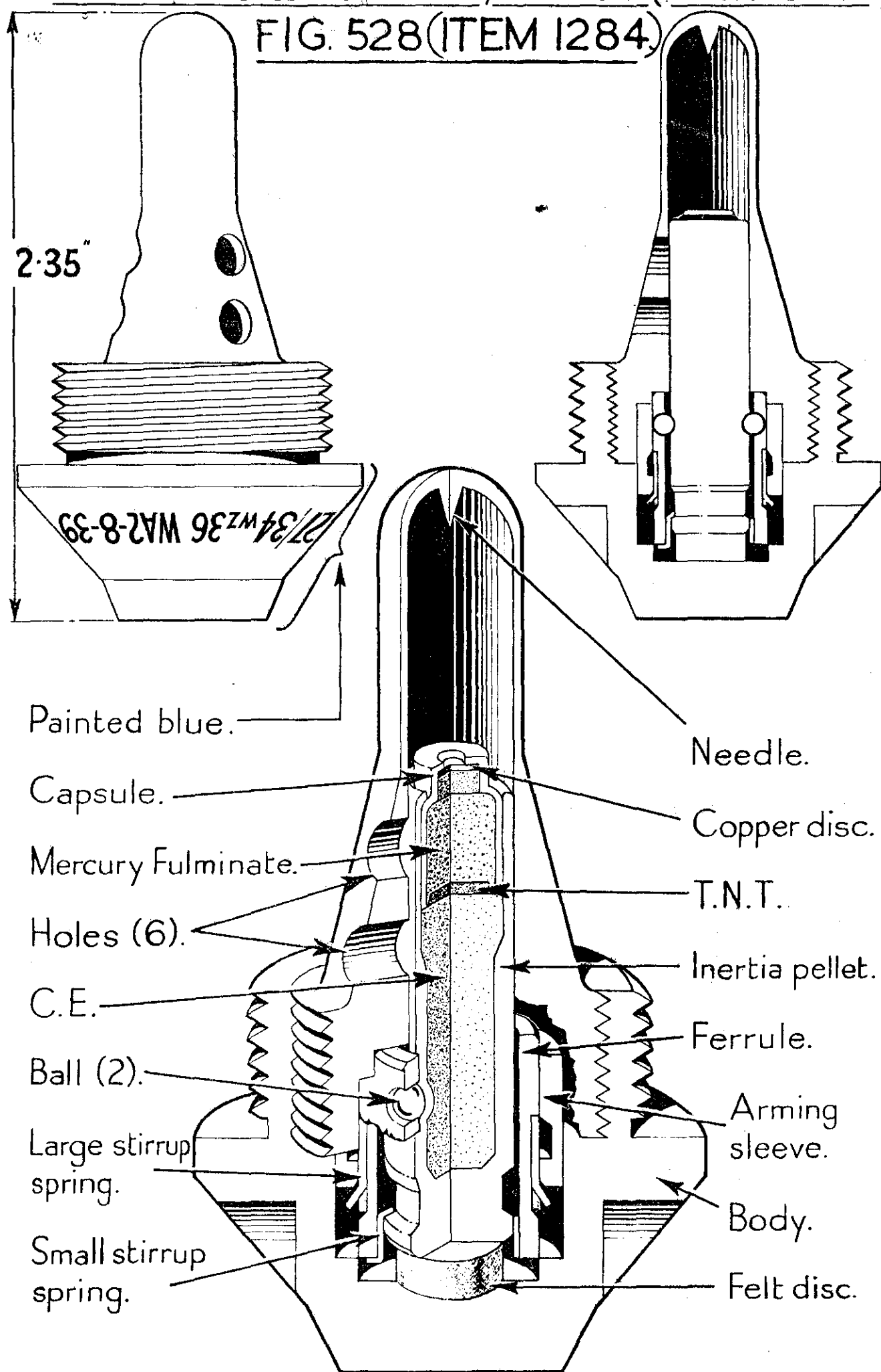
PLAN SECTION AT
 X-X SHOWING SEGMENTS.

SECTION THROUGH X-X
 SHOWING INSIDE STAMPINGS
 AND SCREWED PLUGS
 HOLDING SHEARING WIRE.



GERMAN BASE FUZE 27/34 wz36 (POLISH ORIGIN)

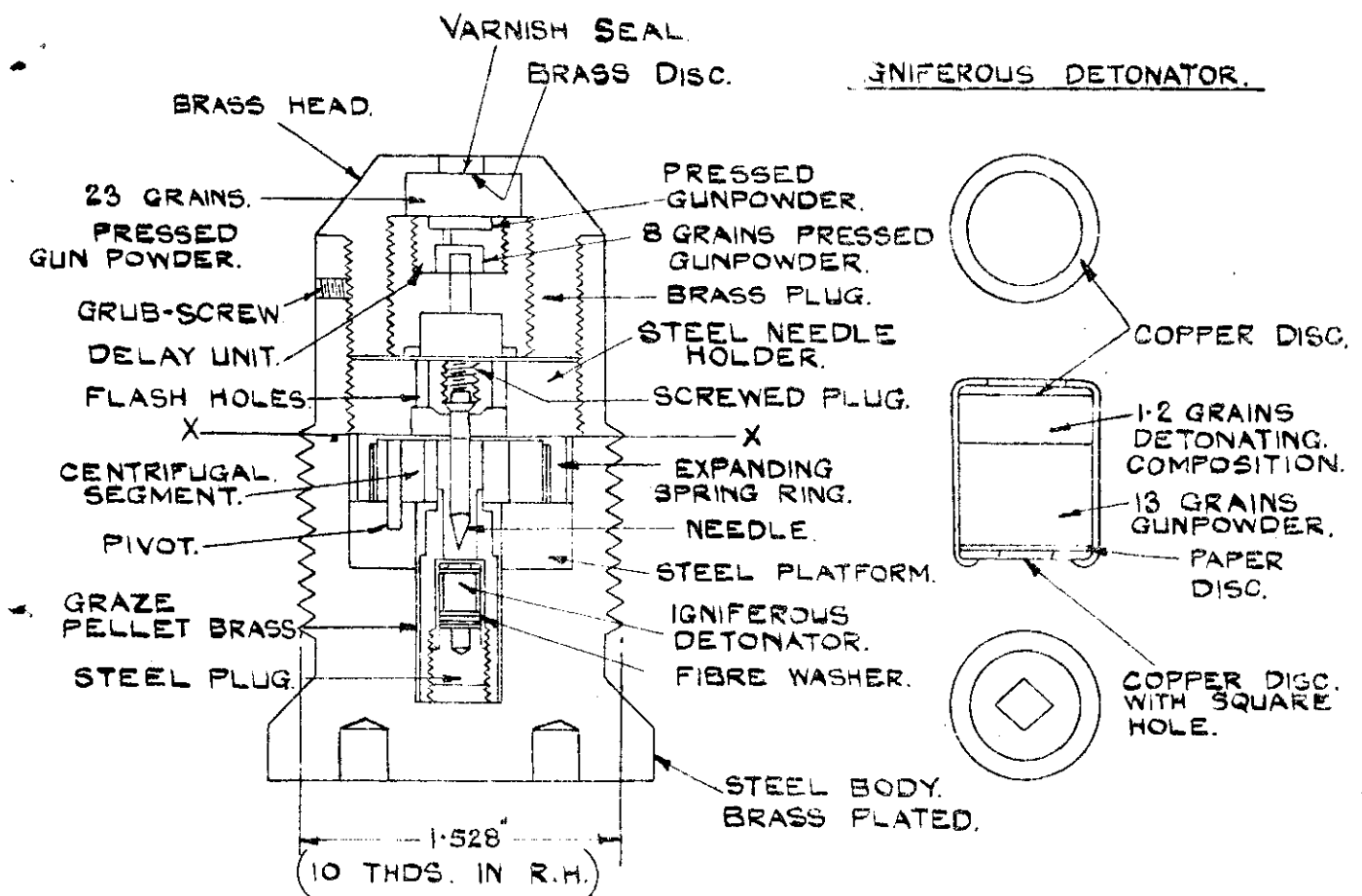
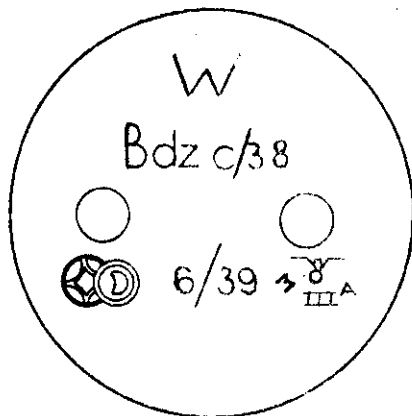
FIG. 528 (ITEM 1284)



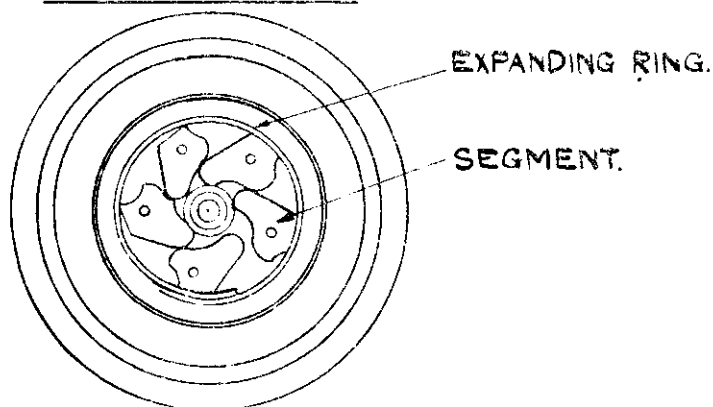
GERMAN BASE FUZE Bdz. C/38.

FIG. 529 (ITEM 1285.)

BASE MARKINGS.

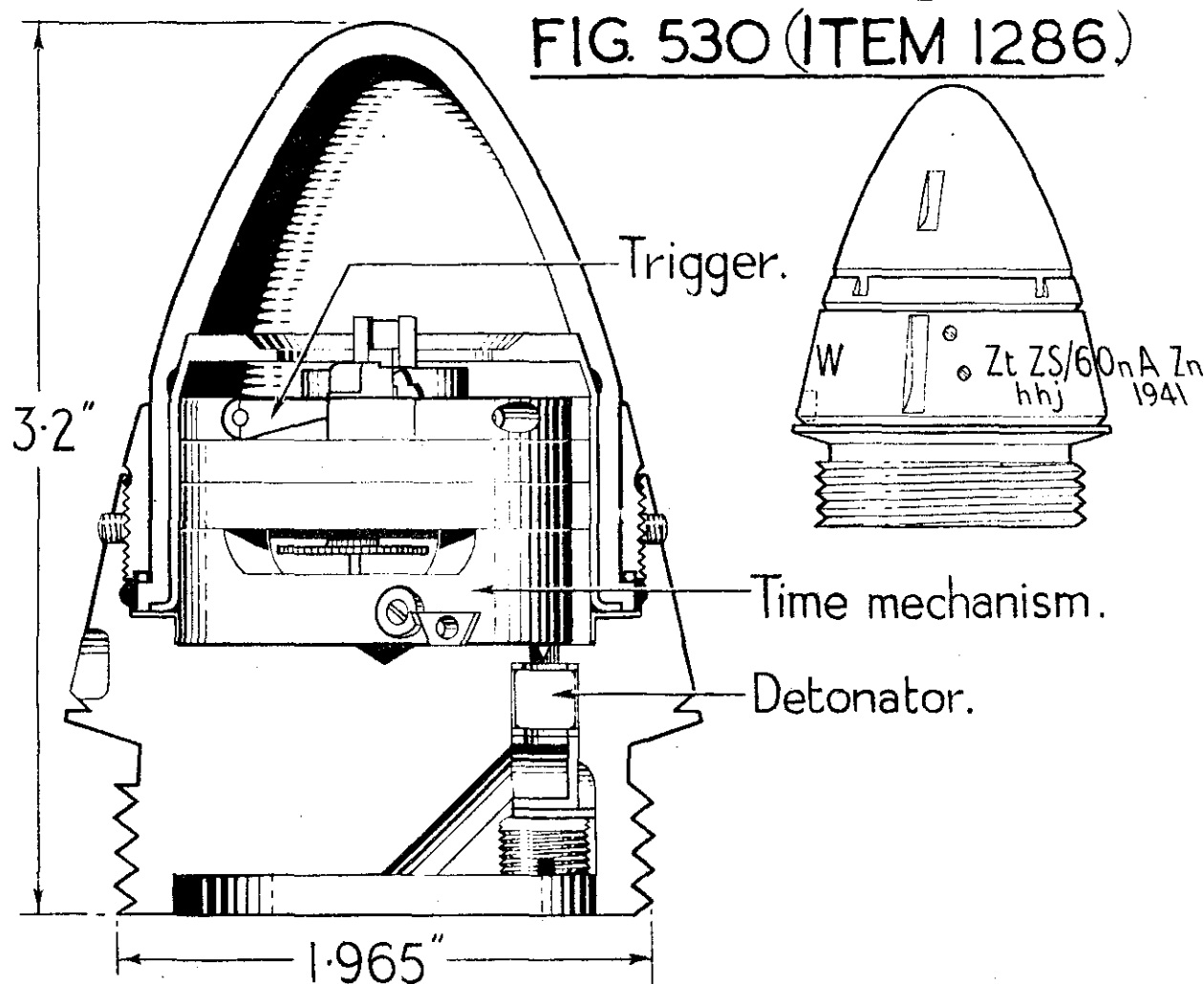


SECTION X-X.

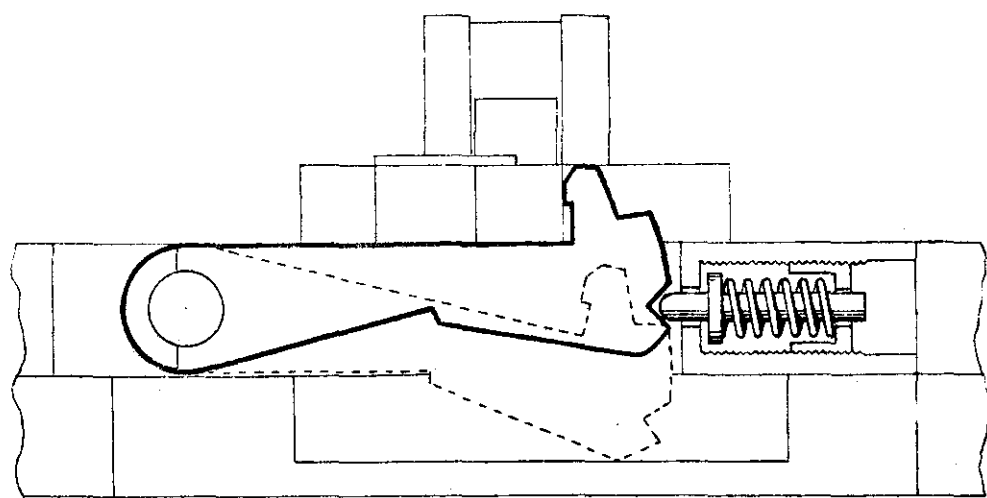


GERMAN MECHANICAL TIME FUZE (Zt.Z.S/60nAZn).

FIG. 530 (ITEM 1286)



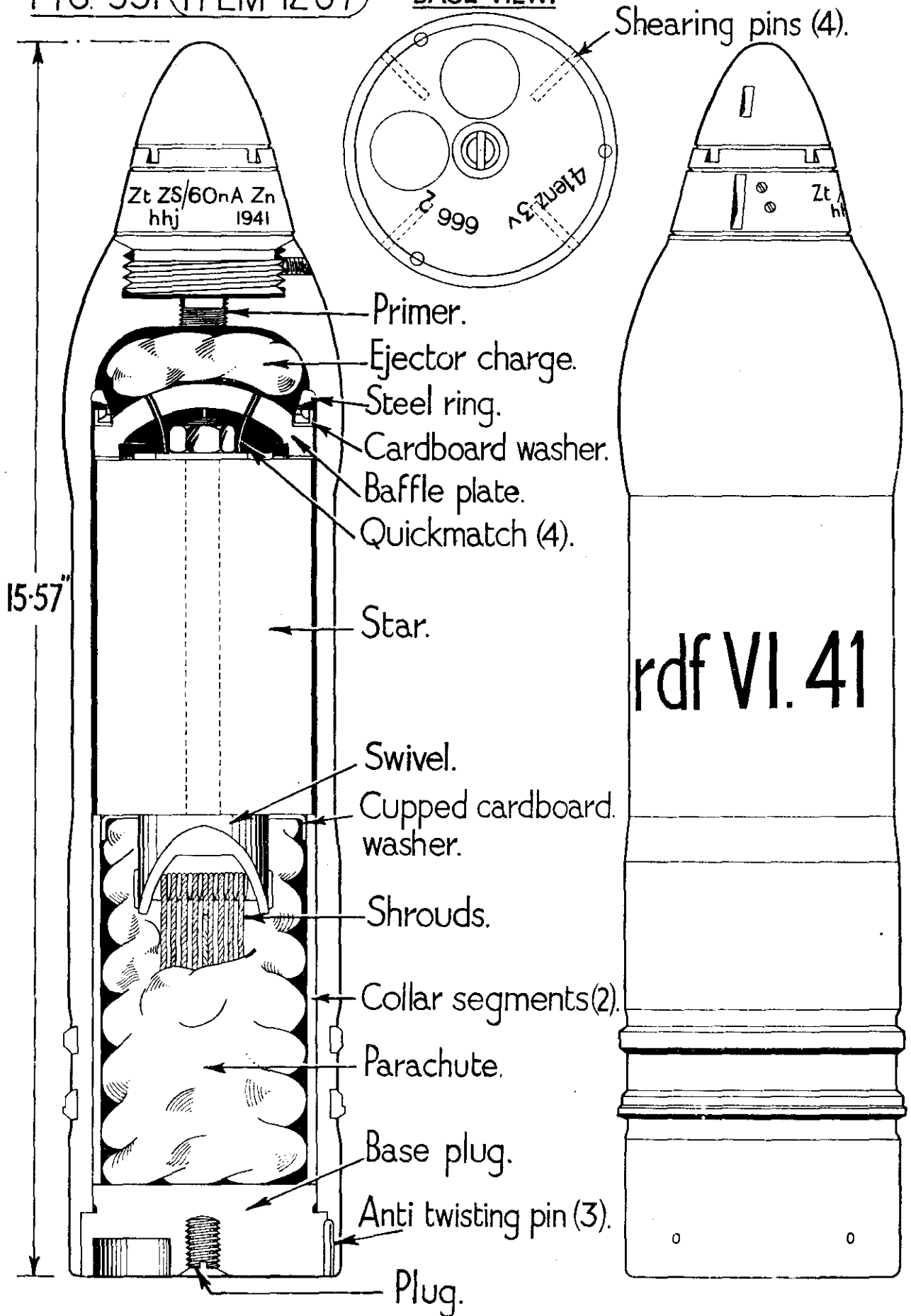
TRIGGER ARRANGEMENT.



GERMAN 8.8cm. FLAK STAR SHELL.

FIG. 531 (ITEM 1287)

BASE VIEW.



GERMAN 10cm. I.F.H. 18:- HOLLOW CHARGE SHELL (Gr 39 Rot HL) METHOD OF FILLING DESIGNS.

FIG. 532 (ITEM 1288)

