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AMMUNITION BULLETIN N° 29

FOR INSPECTING ORDNANCE OFFICERS

AND

A.A. AMMUNITION OFFICERS.

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CHIEF INSPECTOR OF ARMAMENTS,

AMMUNITION BULLETIN NO.29
FOR
INSPECTING ORDNANCE OFFICERS
AND
A.A. AMMUNITION OFFICERS

Issued by :-

Chief Inspector of Armaments,
Woolwich.

July 1942.

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523. BOMBS, SPIGOT, PRACTICE, 29-MM. MORTAR. INSERTION OF TAIL TUBES.

Failure to comply with the instructions regarding the screwing home of tail tubes as laid down in "Handbook for Mortar, Spigot, 29-MM., Mark I" (Page 53, sub-para. (c)) may cause fragmentation of the adapter on firing and result in injury to personnel.

Bombs should be examined to ensure that the tail is screwed fully home when prepared for use and any defective in this respect that cannot be rectified by means of the tools provided should be set aside for the attention of the I.O.O.

524. FUZE, MINE, CONTACT, A.T. NO.3. SAFETY PIN AND SHEARING WIRE.

Reference Item 102 Bulletin No.10 and Fig. 14 Bulletin No.9.

The lettering of Fig.14 in the original print of Bulletin No. 9 indicated the upper pin in the striker to be the shearing wire and the wire below this to be the safety pin. Instructions to reverse the indicated positions of the shearing wire and safety pin in Fig. 14 were given in Item 102 Bulletin No.10.

The lettering of Fig.14 in reprints of Bulletin No.9 indicates the safety pin and shearing wire correctly (i.e. safety pin in the upper position) and no amendment is necessary.

Holders of Bulletin No.9 should examine Fig.14 and ensure their copy is correct.

525. FUZE, POINT, DETONATING, T18E2 (AMERICAN). DETAILS AND PACKING.
Fig. 207.

Reference Bulletin No.28, Item 517, para. 5

1. Details of fuze T18E2 are shown in the drawing. A comparison with Fig. No.141 in Bulletin No.24 makes clear the differences between the design of this fuze and the fuze P.D.M48.

2. When issued separate from shell the fuze is packed as described for the T.SQ.M54 fuze in the following Item.

526. FUZE, TIME AND SUPER QUICK, M54 (AMERICAN). DESCRIPTION AND PACKING.
Figs. 208 & 209

1. This time and percussion fuze is of the igniferous type with a combustion time action and a direct action percussion mechanism. The lower ring is graduated 0-25 and is tensioned at 35 to 65 inch pounds. The maximum time of burning is 25 seconds.

2. For time action the safety wire is removed before loading thus leaving the brass plunger supported by the two magnet wire shear pins. The plunger sets back on acceleration and initiates the primer by firing the striker against the primer and thus igniting the fuze powder in the upper ring. The striker consists of a projection formed on a flanged steel sleeve and located over the primer by a dowel pin which passes through the flange. The perforated powder pellet leading into the lower time ring and in the platform channel leading to the magazine has the perforation filled with nitrocellulose.

3. The percussion arrangements are similar to those of the R.D. fuzes M46 as described in Bulletin No.23 Item 359. The interrupter is designed to arm between 1500 and 2000 R.P.M.

4. The weight of the fuze is 1.42 lb., the maximum length is 4.57 inches and the length protruding when inserted in a shell is 3.76 inches.

5. The fuze is used in conjunction with Booster M.20 in H.E. Shell for 75-mm guns (Vide Bulletin No.28, Item 517), H.E. Shell M41A1 for 75-mm howitzers M.1 and M1A1 and H.E. shell M1 for the 105-mm howitzers M2 and M2A1. These shell are normally issued fuzed.

6. When issued apart from shell the fuze is packed in the fibre container M47 and fifty containers are packed in the wooden "Box packing fuzes". Further details of these packages are given in Bulletin 24, Item 393.

7. The stowage dimensions of the "Box packing fuzes" are 17.4 x 15.9 x 13 inches (approx. 2 cubic feet). The filled weight is approximately 105 lb.

527. FUZE, TIME NO.701 MARK I. DETAILS.

Fig. 210

Reference Bulletin No.19, Item 267 and Fig. 87.

The fuze No.701, Mk.I is a detonating time fuze for use in "Shell, U, H.E., 3-inch No.2". The construction of the fuze is the same as that of the No.700 Mk.II with the addition of a magazine filled C.E. and fitted with a detonator. This addition replaces the No.13 gaine used with the No.700 fuze in the H.E. shell No.1. (The fuze No.700 Mk.II differs from the Mk.I, shown in Fig.87 in being fitted with modified striker, pawls and spring).

528. SHELL, U, H.E., 3-INCH NO.2, MARK I. METHOD OF FILLING 13306A

Fig. 211

1. The No.2 shell differs from the No.1 (shown in Bulletin No.17, Page 15) in having an ogival head struck with a radius of 30 inches whereas the No.1 is cylindrical and is fitted with an adapter which forms the head.

2. Details of the method of filling to design 13306A are given on the drawing which also shows the plug corresponding to fuze time No. 701. The weight of the explosive filling is approximately 2 lb. 2 oz.

3. The shell are painted buff to indicate H.E. and bear the following marking:-

- (a) Ring of red crosses denoting filled and suitable for hot climates.
- (b) "U 3" No.2 1" in black.
- (c) Numeral in circle in black to indicate serial number of filled lot.
- (d) Design number of method of filling in black.
- (e) Green band stencilled "TNT" indicating the nature of the bursting charge.

529. CARTRIDGES B.L. AND TUBES OF NAVAL DESIGN FOR 15-INCH, 8-INCH AND 7.5-INCH GUNS IN COAST ARTILLERY.

Equipment	Charge	Weight, Nature and Size.	Igniters	Position of Foil.	Dimensions of Charge.	Package & Stowage Dimensions.
15-inch	1/4 Mk.I.E.	108 lb S.C.280	One end with cover,	Front end	27.75 x 11.8)	C,P,C, "M" Holds 1 Mk.I with 1 Mk.I.E. 54.7 x 14.2 inches.
	1/4 Mk.I	"	None	One end	25.00 x 11.8)	
	1/4 Mk.II	"	Central at one end	Front end	25.25 x 11.8)	C,P,C, "M" Holds 1 Mk.II (I.G.No.1) with 1 Mk.II. 54.7 x 14.2 inches.
	(I.G.No.1)	"	with three ply cover	One end	24.75 x 11.8)	
	1/4 Mk.II	"	None			
	1/4 Mk.IV	"	Central at one end	Front end	25.25 x 11.8)	C,P,C, "M" Holds 1 Mk.IV (I.G.No.1) and 1 Mk.IV 54.7 x 14.2 inches.
	(I.G.No.1)	"	with three ply cover	One end	24.75 x 11.8)	
	1/4 Mk.IV	"	None			
8-inch Mk.VIII & VIII*	1/2 Mk.I	33 lb. S.C.205	One end with double cover	Front end	24 x 6.7	C,M,R,"J", Holds 5 17.6 x 17.6 x 27.9 or C,M,R,"M". Holds 5 19.6 x 14.7 x 26.8 inches.
	1/2 Mk.III	"	Central at one end with double cover	Front end	23.75 x 6.7	C,M,R,"J" or C,M,R,"M". Holds 5
	1/2 Mk.V	"	Central at one end with double cover	Front end	23.75 x 6.7	C,M,R,"J" or C,M,R,"M". Holds 5
	1/2 Mk.IV	"	None (red disc)	One end	23.75 x 6.7	C,M,R,"J" or C,M,R,"M". Holds 5
	1/4 Mk.I	16 lb 8 oz S.C.205	None	One end	12 x 6.7	C,M,R,"J" or C,M,R,"M". Holds 10

(continued)

Equipment	Charge	Weight, Nature and Size	Igniters	Position of Foil.	Dimensions of Charge	Package & Stowage Dimensions
7.5-inch Mk. II, II ³³³ V and VI	1/2 Mk. I	30 lb 15 oz S.C. 150	One end with double cover	Front end	22.65 x 6.8	C, P, R, "O". Holds 4 15.1 x 15.1 x 29.2 inches.
	1/2 Mk. II	"	Central at one end with double cover	Front end	22.8 x 6.8	" " "
	1/4 Mk. I	15 lb 7 1/2 oz S.C. 150	None	One end	11.4 x 7	C, P, R, "O" Holds 8 15.1 x 15.1 x 29.2 inches.

Tubes.

The Naval tubes used with these equipments are:-

- 15-inch and 7.5-inch guns - tube, vent, electric, .5-inch, Mk. X and tube vent, percussion, .5-inch Mk. VI.
- 8-inch gun. - tube, vent, electric, 1-inch, Mk. IV (This tube, except for dimensions, is similar to the smaller sizes of vent electric tubes).

Packages.

The letters entered in the package column correspond to the following titles:-

- C.P.C. = case, powder, cylindrical.
- C.P.R. = case, powder, rectangular.
- C.M.R. = case, magazine, rectangular.

530. SHELL, B.L., H.E., AND PIERCING TYPES OF NAVAL DESIGN FOR 15-INCH, 8-INCH & 7.5-INCH GUNS IN COAST ARTILLERY.

Calibre, nature of shell and details.	M. of F Design No.	Bursting Charge (Approx.)	Fuze	Exploder System.
15-INCH. H.E., B.M.F. Mk. VII.B. Shell. Base and nose fuzes. Nose fuze covered by ogival zinc alloy screwed nose cap. Fuze hole at base covered by gascheck plate and cover plate. Fig.212	N.O.D. 5746.	129 lb. T.N.T.	Nose: No.360 Base: No.551 Mk. I or No.551 Mk.II	Burster container filled T.N.T. with 8.1 inch cavity containing 5 oz. T.N.T. pellet over 2 oz. C.E. pellet. 6.48" cavity containing 14 dr. C.E. concave pellet over two 14 dr. C.E. pellets. 6.48 cavity containing 14 dr. C.E. concave pellet over one 14 dr. C.E. pellet.
15-INCH. C.P. Mk.III.B. Shell Screwed mild steel ogival plug forms point of shell.	N.O.D. 5747.	132 lb. T.N.T.	No.551 Mk. I or No.551 Mk.II	6.48" cavity containing 14 dr. C.E. concave pellet over two 14 dr. C.E. pellets. 6.48" cavity containing 14 dr. C.E. concave pellet over one 14 dr. C.E. pellet.
15-INCH A.P.C. Mk.XIIA Shell. Aluminium container Ballistic and penetrative caps. Relieved adapter. Setting plug in gas check cover plate for optional delay.	N.O.D. 2666B	48 lb. Shellite 70/30	No.158A	6.32" cavity containing $3\frac{1}{4}$ oz. P.P. concave pellet over shellite ad- justing disc. or 5.84" cavity containing $3\frac{1}{4}$ oz. P.P. concave pellet.
	or N.O.D. 3407	48 lb. Shellite 70/30	No.159	6.32" cavity containing $3\frac{1}{4}$ oz. P.A. concave pellet over shellite adjusting disc. or 5.84" cavity containing $3\frac{1}{4}$ oz. P.A. concave pellet.

Calibre nature of shell and details.	M. of F Design No.	Bursting Charge (Approx.)	Fuze	Exploder System
4-INCH S.A.P.C. Mk.I.B. Shell Ballistic cap. Two driving bands. Setting plug in gascheck cover plate for optional delay.	N.O.D. 2698.A.	12 lb. T.N.T. (2 cast blocks in paper con- tainer) Pitch comp. pad.	No.260 or No.345	Approx. 5.5" cavity containing 1½ oz. T.N.T. pellet over T.N.T. adjusting disc.
	or N.O.D. 3412	- do -	No. 346	Approx. 5.5" cavity containing 1½ oz. T.N.T. concave pellet over T.N.T. adjusting disc.
8 -INCH S.A.P.C. Mk.II.B. Shell Aluminium container Ballistic cap Two driving bands Relieved adapter with guide ring. Removable screw in gascheck cover plate for optional delay.	N.O.D. 2698A	12.25 lb. T.N.T. (2 cast blocks in paper contain- ers) Pitch comp. pad.	No. 260 or No. 345	Approx. 5.5" cavity containing 1½ oz. T.N.T. pellet cover T.N.T. adjusting disc.
	or N.O.D. 3412	- do -	No. 346	Approx. 5.5" cavity containing 1½ oz. T.N.T. concave pellet over T.N.T. adjusting disc.
	or N.O.D. 5704	12.25 lb. Shellite 70/30	No. 346	5.49" cavity containing 3¼ oz. P.A. concave pellet.
	or N.O.D. 5748	12.25 lb. TNT/BWX.93/7 RD.1006 pad.	No. 346	5.84" cavity with T.N.T. surround and containing 3¼ oz. CE concave pellet.
8-INCH S.A.P.C. Mk.IIIB Shell Aluminium container Ballistic cap. Two driving bands. Relieved adapter with guide ring Setting plug in gascheck cover plate for optional delay.	N.O.D. 3407	11 lb. Shellite 70/30	No. 346	6.32" cavity containing 3¼ oz. P.A. concave pellet over shellite adjusting disc. or 5.84" cavity containing 3½ oz. P.A. concave pellet.
	N.O.D. 4060	11 lb. TNT/BWX.93/7	No. 346	5.84" cavity with T.N.T. surround and containing 3¼ oz. C.E. concave pellet.

(Continued).

Calibre, nature of shell and details.	M. of F. Design No.	Bursting Charge (Approx.)	Fuze	Exploder System.
8-INCH S.A.P.C. Mk.IVB H.T. Shell Aluminium container. Ballistic cap. Two driving bands. Relieved adapter with guide ring Tracer shell No.8 fitted in place of gascheck cover plate. Removable screw in gascheck cover plate for optional delay.	N.O.D. 4473	12 lb. Shellite 70/30	No.346	5.84" cavity containing $3\frac{1}{4}$ oz. P.A. concave pellet
	N.O.D. 5739	12 lb. TNI/BWX.93/7 RD.1006 pad.	No.346	5.84" cavity with T.N.T. surround contain- ing $3\frac{1}{4}$ oz. C.E. concave pellet.
7.5-INCH S.A.P.C. Mk.I.A. Shell Ballistic cap. Setting plug in gascheck cover plate for optional delay.	N.O.D. 2698A	9 lbs. T.N.T. (2 cast blocks in paper containers) Pitch comp. pad.	No.260 or No.345	Approx. 5.5" cavity containing $1\frac{1}{4}$ oz. T.N.T pellet over T.N.T. adjusting disc.
	N.O.D. 3412	- do -	No.346	Approx. 5.5" cavity containing $1\frac{1}{4}$ oz. T.N.T concave pellet over T.N.T. adjusting disc.
7.5-INCH H.E. Mk. IVA and VA Shell.	N.O.D. 3499	25 lb. T.N.T.	No.44 or No.45P	3.63" cavity containing 4 dr. T.N.T. bag over 5 dr. T.N.T. bag. 3.63" cavity containing 5 dr. P.P. bag.

Notes : Composition R.D.1006 consists of resin, carnuba wax, mineral jelly and kaoline and is also used as a pad in the forward end of the shell cavity in pointed and piercing shell filled T.N.T./B.W.X. in the Land Service.
The inclusion of a guide ring in the closing arrangements at the base of pointed and piercing shell prevents the gascheck plate being turned by the cover plate when the screwed ring is turned and thus makes the use of the clamping device unnecessary in the opening or closing of the shell.

531. SHELL 15-INCH, 8-INCH AND 7.5-INCH OF NAVAL DESIGN IN COAST ARTILLERY.

Weight and Dimensions.

Equipment	Nature & Mark of Shell	Approx. Length	Diameter of Driving band.*	Approx. Weight.
15-inch	H.E., B.N.F., Mk.VII.B.	67-ins.	15.76-ins	1938 lb.
15-inch	C.P. Mk.III.B.	67-ins.	15.76-ins	1938 lb.
15-inch	A.P.C. Mk.XII.A.	67-ins.	15.76-ins.	1917 lb.
8-inch	S.A.P.C. Mk. I.B.	not specified.	8.43-ins.	256 lb.
"	S.A.P.C. Mk.II.B.	"	8.43-ins.	260 lb.
"	S.A.P.C. Mk.III.B.	"	8.43-ins.	256 lb.
"	S.A.P.C. Mk.IV.B HE.	35.5-ins.	8.43-ins.	256 lb.
7.5-inch	H.E. Mk.IV.A.	W/O Fuze 28.34-ins.	7.99-ins.	200 lb.
7.5-inch	H.E. Mk.VA	W/O Fuze 28.15-ins.	7.99 ins.	200 lb.
7.5-inch	S.A.P.C. Mk.I.A.	not specified.	7.97-ins.	200 lb.

* Grunnets are made up with rope of the following circumferences:-

15-inch shell - 2.5-inch rope
8-inch shell - 1.5-inch rope
7.5-inch shell - 1.5-inch rope

532. MARKINGS ON NAVAL 15-INCH, 8-INCH AND 7.5-INCH AMMUNITION ISSUED TO COAST ARTILLERY.

Reference Item 353, Bulletin No.23.

1. The variations from Land Service markings given in Item 353 will also be found on these shell of larger calibre but with reference to (b) of the quoted Item, 8-inch S.A.P.C. shell are marked with a half inch white ring above the red ring.
2. Where a shellite adjusting disc has been inserted in the exploder cavity, its presence is indicated by the stencilling "Disc Sh." on the shell below the markings relating to the exploder.
3. Penetrative caps, additionally secured by sweating, are stamped and stencilled "S" on the skirt of the cap.
4. The symbol normally stencilled on shell designed to take a Mark V (or subsequent mark) tracer, is also used in connection with the No.8 tracers. The symbol consists of the usual curve, with a horizontal bracket stencilled below it. The arms of the bracket extend upwards and the "T" is enclosed between the curve and bracket when the tracer is fitted.

5. The letter "I" stamped on the gascheck cover plate, adjacent to the delay setting plug, indicates that the intrusion of the fuze relative to the seating for the gascheck plate is H.015, L.005. A star is added to the letter when intrusion has been reduced to H.005 to .000. Intrusion is adjusted by fitting a washer under the flange of the fuze.

6. Where a No.8 tracer is fitted, instead of a gascheck cover plate, the base of the tracer is painted red when the shell is fuze.

7. The screwed ring, securing the gascheck cover plate or the No.8 tracer at the base of pointed or piercing shell, is painted to indicate the fuze as follows:-

White for fuzes No. 158, 158.A. or 159.

Yellow for fuzes No. 345, 345.A. or 346.

Black for fuze No. 260 or 260.A.

Red for fuze No. 551 (with the addition of a white diametrical band on the gascheck cover plate).

8. The centre of gravity of 15-inch shell is indicated by a white band, quarter of an inch wide, and the usual symbol, (circle bisected by horizontal bar) which is stencilled at three equi-distant points on the white band.

9. Letters "NP" on pointed or piercing shell, after the fuze details, and stamped in the base of base fuzes, indicates that the fuze has been fitted with a new graze pellet.

10. The letters "U.S." stamped adjacent to the fuze numbers, indicates American standard threads.

533. FUZE, TIME, No.198 MARK II. DETAILS.

Fig 213

This is an igniferous time fuze of the combustion type with a maximum time of burning of 45 seconds which is being supplied to the Land Service from Naval sources. The fuze is of 2-inch gauge and is tensioned to 450 inch-oz.

The fixed upper time ring is graduated 0-22 and is filled with 22 second fuze powder. The movable lower time ring is engraved with the setting mark and is filled with R.D.202.

The detonator contains 1.4 grains of G.20 over 1.1 grains of Detonating Composition "B" or "B1".

534. FUZE, TIME, NO.206 MARK II. DETAILS.

Fig. 214

This igniferous mechanical time fuze is being supplied to the Land Service from Naval sources.

The maximum time of running is 43 seconds. A brass bridge is fitted to the top plate of the clockwork mechanism to prevent premature functioning of the fuze at the muzzle. The bridge is secured across the open end of the trigger slot in the top plate by two screws and has a projecting piece which fits over the hand near its outer end. This device necessitates an angular movement of the hand equal to .72 seconds of time for the hand to clear the projecting piece and thus prevents arming during this period.

The clockwork mechanism and general construction of the fuze is similar to that of the No.207 fuze of the Land Service.

535. FUZE, PERCUSSION, D.A. NO.360.C. MARK I. DETAILS.
Fig.215

This is a Naval fuze issued to Land Service for use in the 15-inch H.E., B.H.F. shell in Coast Artillery.

The fuze is converted from the No.117 Mark III fuze. The details of the conversion are as follows:-

- (a) The striker cover is omitted.
- (b) A steel cylindrical striker head with rounded top is fitted instead of the type used with the No.117 fuze.
- (c) A new hole is drilled in the striker, at right angles to the existing hole, to receive the steel split pin which secures the striker head.
- (d) The central hole in the guide bush is enlarged.
- (e) A shutter spring designed for arming between 1200 R.P.M. and 1400 R.P.M. is fitted.

536. FUZE, TIME, NO.400. DESCRIPTION.
Fig. 216

This is an igniferous time fuze of the combustion type with a maximum time of burning of 9.4 to 10 seconds. The fuze is of 2-inch gauge, tensioned to 450 inch-oz and is one of the Naval types being issued to Land Service for use in Coast Artillery.

The upper time ring which is fixed and graduated from 0 to 22 contains no filling. The empty filling groove in its underside is without the usual bridge and thus forms a complete circular path for the flash from the detonator which enters through two flash channels formed in the inner face of the ring.

Two baffle type flash channels formed in the body, are in alignment with the corresponding channels in the fixed upper ring and are positioned so that the flash enters the groove of the ring at a point near the zero graduation and also at a point near the 16 graduation.

The lower ring, which is movable and engraved with the setting mark, has a filling of S.R.304 with the usual gunpowder pellet leading to the upper surface of the ring near the commencement of the filling. The position of the two flash channels for the ignition of this pellet ensures a short passage for the flash at the various settings of the lower ring.

The detonator contains 1.8 grains of G.20 gunpowder over 1.45 grains of Detonating Composition "B" or "B1".

537. FUZES, PERCUSSION, BASE, LARGE NO.158 AND 158.A. DETAILS.

Reference Fig.136, Bulletin No.24.

This Naval type of detonating base fuze with optional delay is being issued to Land Service for use in Coast Artillery.

The construction of the No.158 and 158.A. fuzes is the same as that of the No.479.A. shown in Fig.136 but the creep spring in the No.158 type is compressed by a load of 3 lb. 9 oz.

The No.158 fuze has a C.E. pellet in a green paper wrapping in the central magazine and a paper wrapped ring pellet in the magazine ring. The fuze is identified by a green paper disc over the central magazine, and a green diametrical band across the base of the fuze, which is painted white.

The No.158.A. fuze differs from the No.158 in having a Picric Powder pellet in a white paper wrapping in the central magazine. The fuze is identified by a white paper disc over the central magazine, and the absence of the green band from the white painted base.

538. FUZES, PERCUSSION, BASE, LARGE No.345 & 345.A. DETAILS.

Reference Fig. No.136, Bulletin No.24.

This Naval type of detonating base fuze with optional delay is being issued to Land Service for use in Coast Artillery and, as in the case of the No.158 types of fuzes, the construction is the same as that of the No.479.A. fuze shown in Fig.136 but the creep spring in the No.345 type is compressed by a load of 6 lb. 4 oz.

The "A" added to the fuze number indicates a Picric Powder pellet instead of a C.E. pellet in the central magazine. The base of the fuze is painted yellow and the No.345 fuze is identified by a green band across the base and a green paper disc over the central magazine.

539. TRACER, SHELL, NO.8 MARK I. DESCRIPTION.
Fig. 217

This is an night internal tracer of Naval design issued to Land Service for use in Coast Artillery. The tracer is fitted in place of the gascheck cover plate in shell taking fuzes No.159, 346 or 480 (i.e. large detonating base fuzes with optional delay) and includes a hole, closed by a screwed plug, for optional delay action of the fuze. The screwed plug is removed by means of key No.150 to obtain delay action. The base of the tracer, adjacent to the screw, is stamped with a directing arrow and the words "For delay, remove screw".

The bright trace, visible to the unaided eye, commences about one second after firing and continues for at least seven seconds.

540. BOMB, S.B., M.L. CHEMICAL, 4.2-INCH MORTAR MARK I. DESCRIPTION AND PACKING.

Fig. 218

1. Details of the general arrangement, the method of head filling to design 13655.A., and the markings, are given on the drawing.
2. Bombs with varnished interiors are stencilled "VAR" in two places, below the coloured band. For details of coloured bands and code letters indicating types of chemical charging, see Bulletin No.22, Item 332.
3. The stowage dimensions of the bomb are, maximum diameter 4.2 inches, overall length (plugged) 19.7-inches, (fuzed) 20.4-inches. The weight of the bomb, filled and fuzed, is approximate 20.5 lb.
4. Two fuzed bombs, each fitted with the retaining spring for the augmenting charges at the tail and a cord sling, with wooden handle and end piece around the body for lifting, are packed in "Box, Ammunition B.176". The box also contains two tail covers of water-proofed cotton fabric and a tinneplate box, No.378, in which are packed two primary cartridges and twelve augmenting charges.

5. The wooden box is painted grey to indicate the nature of the bomb and a one inch coloured band, corresponding to the charging band on the bomb, is painted round the middle of the box. The code marking for the chemical charging is stencilled on the end cleats and on the coloured band where it passes over the side cleat.

6. The following details are stencilled on the box:-

- | | |
|--------------|--|
| <u>End.</u> | Packing serial number of box
Type and calibre of mortar.
Nature and mark of bomb. |
| <u>Lid.</u> | Number, mark and lot of fuze |
| <u>Side.</u> | Type and calibre of mortar.
Contents of box.
Charging station, date of charging and charging lot number.
When plugged bombs are packed the letters "PLGD" are stencilled on the side cleat. |

7. The stowage dimensions of the box are 27.4 x 13.8 x 9.2 inches. The approximate weights, empty and filled are 18 lb. and 60 lb. respectively.

8. Details of the primary and augmenting cartridges are given in Item 545.

541. BOMB, S.B., M.L., SMOKE, 4.2-INCH MORTAR MARK I. DESCRIPTION AND PACKING.

Fig. 219

1. Details of the general arrangement, method of head filling to design 13668A, method of charging to design 13668A/1 and the markings are given in the drawing.

2. The stowage dimensions of the bomb and the packing are the same as that given for the chemical bomb in the preceding Item.

3. The package is painted green to indicate the nature of the bomb and the end cleats are stencilled "PHOS".

4. Details as given in para. 6 of the preceding Item are stencilled on the box.

542. BOMB, S.B., M.L., H.E., 4.2-INCH MORTAR, MARK I. DESCRIPTION AND PACKING.

Fig. 220

1. This bomb was designed to provide a burst suitable for observation during ranging preparatory to the firing of chemical bombs. The bombs are accordingly specially marked.

2. Details of the general arrangement, method of filling to designs 13607 and 13607A and the markings are given in the drawing. In this instance the letter "A" after the design number indicates a topping of R.D.1021 instead of T.N.T. (the composition of R.D.1021 is given in the note at the bottom of page 13 in Bulletin No.20). It should be noted that this bomb is fitted with a nose adapter instead of the burster container used in the other types.

3. The stowage dimensions of the bomb and the packing are the same as that given for the chemical bomb in Item 540.

4. The package is stained vandyke brown or painted dark brown and the end cleats are stencilled to indicate the nature of the H.E. bursting charge. The box is also stencilled on the side, "H.E. RANGING".

5. Details as given in para. 6 of Item 540 are stencilled on the box but in this case the filling station, date of filling and filled lot number, instead of the charging details, are stencilled on the side of the box.

543. BOMB, S.B., M.L., PRACTICE, INERT, 4.2-INCH MORTAR MARK I. DESCRIPTION AND PACKING

1. The inert practice bomb is filled with sand and pitch and is fitted with a "Plug representing fuze percussion D.A. No.152".
2. The bomb body, with the exception of the two guide rings, is painted black and marked with a yellow band midway between the guide rings.
3. The stowage dimensions of the bomb and the packing are the same as those given for the chemical bomb in Item 540.
4. The package is stained vandyke brown or painted dark brown. The handle cleats at the ends and the side are painted yellow and stencilled "PRAC INERT".
5. Details on the lines of those given in para. 6 of Item 540 are stencilled on the box with "PLGD" in place of the fuze details.

544. BOMB, S.B., M.L., PRACTICE, BURSTING, 4.2-INCH MARK I. DESCRIPTION AND PACKING.

1. The bursting practice bomb filled and charged to design 14118 contains a head filling similar to that in the chemical or smoke bombs and a charging of calcium chloride.
2. The body of the bomb, with the exception of the two guide bands and the nose, is painted black. The nose is painted yellow and marked with a red ring. A yellow band is painted midway between the two guide bands.
3. The stowage dimension of the bomb and the packing are the same as that given in Item 540.
4. The colouring and marking of the package are the same as used for the inert practice bomb except that the cleats are stencilled "PRAC BRSTG" and the fuze particulars are stencilled on the lid.

545. CARTRIDGES, S.B., 4.2-INCH MORTAR. DESCRIPTION AND PACKING.

Fig. 221

1. Details of the 350 grain Mark I augmenting charge and the 140 grain Mark I primary cartridge are given in the drawing. The drawing of the augmenting charge shows the alternative convex closing cap in chain line.
2. As with the 3-inch mortar, the primary cartridge is inserted in the propellant container in the tail unit and six augmenting charges are assembled between the vanes and secured by a retaining spring.
3. The retaining spring is fitted to the tail of the bomb when packed but the cartridges, 2 primaries and 12 augmenting, are packed in the tinned plate box No.378 and included in the box containing the bombs.

546. PRIMERS, PERCUSSION, Q.F. CARTRIDGE. COLOURING OF CAPS TO INDICATE INITIATOR FILLING.

Reference Bulletin No.14, Item 144.

In future all primers with caps filled with Q.F. composition will be lacquered blue and those filled with A.1 mixture will be lacquered red.

547. GRENADE, HAND, NO.76 (S.I.P.). PAPER SLEEVES FOR USE WITH 2.5-INCH PROJECTOR.

Reference Bulletin No.28, Item 506.

1. Paper sleeves for fitting on these grenades to prevent bursting in the bore when fired from the 2.5-inch (Northover) projector are issued in cartons holding 96.

2. The sleeve consists of a paper cylinder 4-inches long and $2\frac{1}{2}$ -inches in diameter with a wall-board washer secured in one end. The washer is half an inch thick and has a perforation $1\frac{1}{2}$ -inches in diameter. The grenade is placed in the sleeve and the open end of the sleeve is then secured to the grenade by a gummed strip. The strip, 9-inches long and 1-inch wide, is supplied with the sleeve.

The sleeves and strips are packed in a cardboard container (No.65) which contains 24. Carton No.20 which holds 4 containers No.65 is also of cardboard and has the following stowage dimensions:- 16 x 11.5 x 20.8 inches. A diagram with instructions for the fitting of the sleeves is contained in each package.

548. FUZES, TIME, NO.207 MARK V AND NO.208 MARK I. MUZZLE SAFETY DEVICE.
Fig.214

The muzzle safety device described in Item 534 in connection with the fuze No.206 Mark II is also incorporated in the No.207 Mark V fuze and the No.208 Mark I.

549. FUZES NO.119, 221, 222 AND 231. MARKING "B" TO INDICATE WEAKER DETENT SPRINGS.

Fuzes No.119, 221 and 231 fitted with weaker detent springs to ensure arming at lower velocities will be identified by the letter "B" following the mark.

Fuze No.222 will also be fitted with the weaker detent spring but, as none of these fuzes have been supplied to the Service with the stronger spring, identification marking will not be necessary.

550. FUZE NO.119. ABOLITION OF LABEL L.508.

The use of the label L.508 with the above mentioned fuze is to be discontinued.

The label, hitherto attached to the cap of the fuze, is worded to the effect that the cap should be left on when the target is behind cover. The order "Cap On" is passed to the guns when graze action is required.

551. CARTRIDGES, Q.F., 25-PDR. COMPOSITE CHARGES OF CORDITE W.M. AND N.H. POWDER. STABILITY.

Reference Bulletin No.24, Item 385 and Bulletin No.26, Item 439.

As the result of trials it is anticipated that the stability of the two natures of propellant, in the same cartridge case, will be satisfactory for a period of two years at home or abroad.

Approval has been given for a composite charge of N.H. powder and cordite W.M., to be adopted in an emergency, with a world-wide life of 2 years.

552. TABLE OF COMPLETE ROUNDS OF BRITISH AMMUNITION FOR Q.F. 75 M.M. GUNS.

Mark of Round	Mark of field guns in which used. (1)	Projectile			Fuze or Tracer (2)	Propellant Charge.		Primer.
		Nature (3)	Mark	Wt. Fuzed		Nature & Size.	Weight	
I.F.	Mk.I, Convtd. Mk.I, "S" Mk.II.	H.E.	II	12.06 lb.	RYG.24/31	W.040 or W.M.042	1b.oz.dr. 1. 0. 7.	No.28 or M22
II.F.	-do-	H.E.	II	12.06 lb.	RYG.24/31	F.N.H.016	1. 5. 5.	No.28, M22 or 49 gr. Mk.I
I.T.F	-do-	A.P. Shot	I.T.	13.94 lb.	T. Integral	F.N.H.025	1.13.13.	No.28, M22, M31
I.T.F	-do-	S.A.P. Shot	I.T. or II.T.	13.94 lb.	T.No.2 Mk.VIS	W.T.144-048 or W.M.T.148-048	1. 8. 8.	No.28
II.T.F	-do-	S.A.P. Shot	I.T. or II.T.	13.94 lb.	T.No.2 Mk.VIS	F.N.H.025	1.13.13.	No.28, M22, M31.
III.F.	-do-	S.A.P. Shot	III	14.06 lb.	-	W.T.144-048 W.M.T.148-048	1. 8. 8.	No.28
IV.T.F	-do-	S.A.P. Shot	IV.T, V.T or VI.T.	13.94 lb.	T. Integral	-do-	1. 8. 8.	No.28
V.F	-do-	S.A.P. Shot	III	14.06 lb.	-	F.N.H.025	1.13.13.	No.28
VI.T.F	-do-	S.A.P. Shot	IV.T, V.T. or VI.T.	13.94	T. Integral	-do-	1.13.13.	No.28, M22, M31.

(1) The American designations of guns corresponding to these Marks are given in Bulletin No. 28, Item 517, para. 2.

(2) Details of fuze RYG.24/31 are given in Bulletin No. 23 Item 358.

(3) Details of the smoke emission round are not yet available. Bulletin No.26, Item 441 refers to the shell. These shell will be issued for M2 or M3 tank guns.

553. CARTRIDGES, Q.F., 75 M.M. GUNS. PACKING OF BRITISH ROUNDS.

Mk. of Round.	B O X			Stowage Dimensions	Approx. Weight
	No.	Material	Rds.		
H.E. Mk.I.F. & II.F	C.262	Wood	3	28 x 15.8 x 7	80 lb.
A.P. Mk.I.T.F.	C.238A	Steel	4	25.9 x 9.6 x 10.1	90
	C.260	Wood	3	24.9 x 15.8 x 7	77
	C.265	Steel	4	29.5 x 10.3 x 10.3	90
S.A.P. Mk. I.T.F., II.T.F., III.F., IV.T.F. V.F. & VI.T.F.	C.260	Wood	3	24.9 x 15.8 x 7	77

NOTES:-

H.E. rounds are packed plugged.

Each round in box C.238.A. is packed in Container No.45. Safety clip No.35 is fitted to cartridges except when packed in box C.260. This box is fitted with a strip which obviates the use of the clips.

554. AMENDMENTS.

Bulletin No.22

Item 327, para. (c), line 3 :-

Delete "Item 232, Bulletin No.18" and substitute "Item 434, Bulletin No.25".

Bulletin No.25

Page 7, Item 430, package table:-

3rd column. Delete "26 x 13.8 x 9.5" and substitute "27.6 x 13.8 x 9.5".

4th column. Delete "21 lb." and substitute "25 lb."

Bulletin No.26

Item 443, Line 1, (heading) :-

Delete "A" and substitute "P".

Bulletin No.28

Page 10, line 2:-

Delete the inverted commas from the word "long".

Page 22, line 2:-

Before "German" insert "521".

555. CARTRIDGES Q.F. 75 MM. GUNS. PACKING OF AMERICAN ROUNDS.

Reference Bulletin No. 28, Item 517 (Table of Complete rounds).

Nature & mark of Proj.	Fuzed or Plugged.	Container (Cartridge)	Package	Rds.	S T O W A G E			Weight lbs.
					Dimensions	Sq.ft.	Cu.ft.	
H.E. Mk. I.	Plugged	Fibre M21	Wd. Box	4	30.8 x 9.7 x 9.7	2.07	1.69	95
-do-	-do-	-do-	Clamp	3	27.1 x 8.1 x 7.6	1.53	.96	60
H.E. M48	Fuzed	Fibre M38A1	Clamp	3	29.4 x 8.1 x 7.6	1.65	1.04	69
Chem. Mk. II (smk)	Plugged	Fibre M21	Clamp	3	27.1 x 8.1 x 7.6	1.53	.96	61
-do-	-do-	-do-	Wd. Box	4	30.8 x 9.7 x 9.7	2.07	1.67	95
Chem. Mk. II (Gas)	Plugged	Fibre M21	Clamp	3	27.1 x 8.1 x 7.6	1.53	.96	59
-do-	-do-	-do-	Wd. Box	4	30.8 x 9.7 x 9.7	2.07	1.67	95
Shrap. Mk. I	Fuzed	Fibre M21	Wd. Box	4	30.8 x 9.7 x 9.7	2.07	1.67	111
-do-	-do-	-do-	Clamp	3	27.1 x 8.1 x 7.6	1.53	.96	74
A.P., M61	(Shot)	Fibre M38A1	Clamp	3	29.4 x 8.1 x 7.6	1.65	1.04	70
S.A.P. M72	(Shot)		Clamp	3				
T.P. Mk. I	Inert	Metal	Wd. Box	9	29 x 12.5 x 13	2.72	2.52	192
-do-	-do-	Fibre M21	Clamp	3	27.1 x 8.1 x 7.6	1.53	.96	60

NOTES :- H.E., Smk., Gas, Shrap. and Target Projectile rounds of earlier supply may be packed in fibre or metal containers and 4 or 9 containers packed in a wooden box. The 4 round box is 31 x 9.5 x 9.5 inches and weighs approx. 93 lbs. The 9 round box is 29 x 14 x 12.8 and weighs approx. 204 lbs. The actual space required for the stowage of the bundle package of three containers in the clamping device may be reduced to 70% by careful stowage.

ENEMY ARMAMENTS.

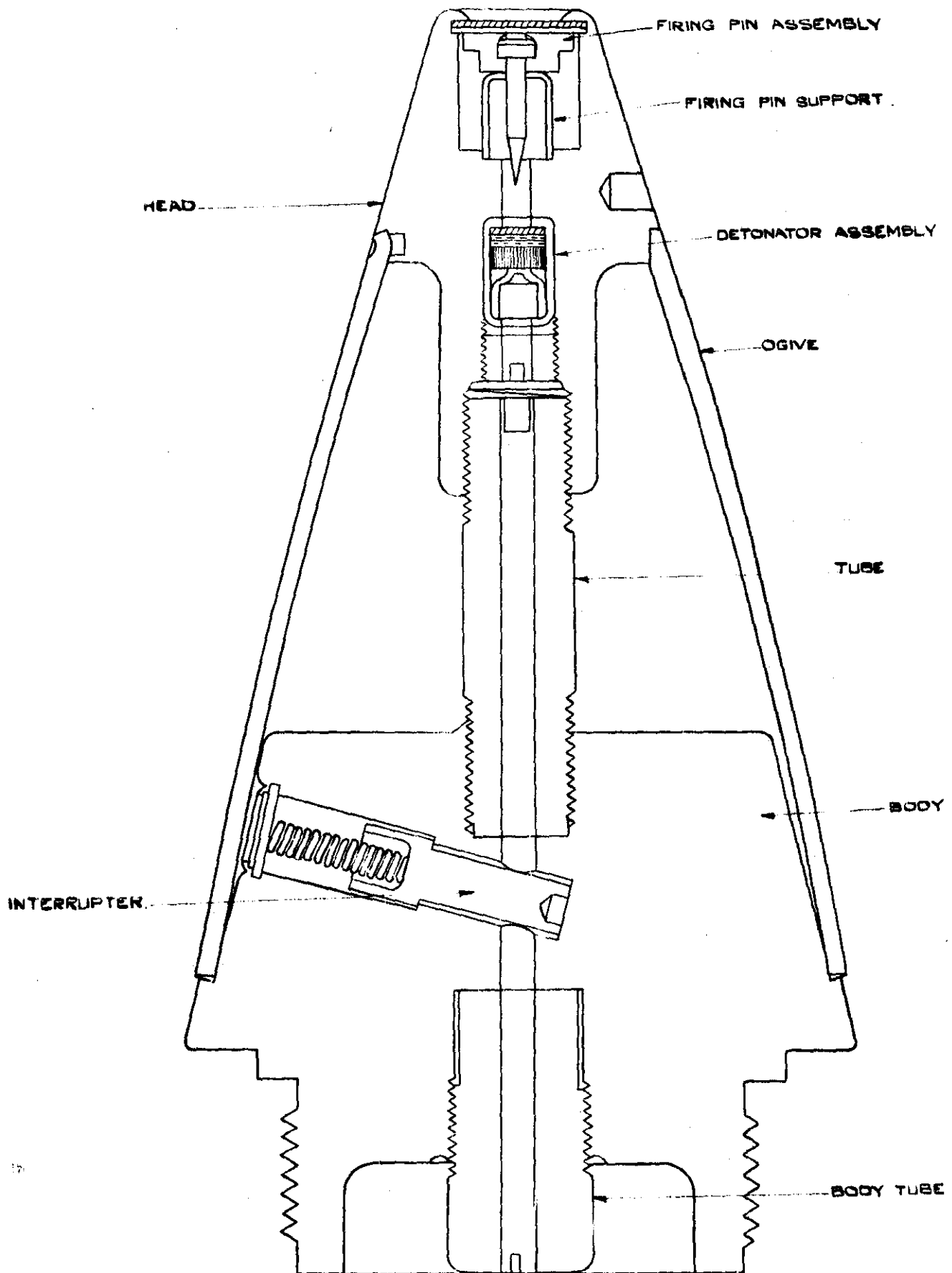
556. GERMAN DEMOLITION CHARGES FOR ARMOUR PLATE.

Fig. 222

1. These charges are designed on the "hollow charge" principle and are intended for the perforation of armour plate in fixed defences so that grenades etc. can be used through the perforation.
2. Two types are known to exist; the $12\frac{1}{2}$ kg. (27.5 lb) charge and the 50 kg. (110 lb.) charge.
3. The $12\frac{1}{2}$ kg. charge consists of a light metal bell-shaped container which contains the T.N.T. blasting charge with a hemispherical cavity and an intermediary prepared to receive a detonator. The charge container is fitted with a handle for transport.
4. The 50 kg. charge is made up in two parts for convenience in handling, each part being provided with a handle, and one part is superimposed on the other when positioned for use. The containers are both of light metal and are shaped to fit closely together when assembled. The T.N.T. filling of the inner part has a hemispherical cavity whilst the filling of the outer part, also T.N.T., includes an intermediary prepared to receive a detonator.
5. The charges are positioned with the flat surface on the plate and are initiated by means of a detonator of the normal type which is inserted in the intermediary and ignited by means of a length of safety fuze and a friction igniter.
6. The perforation performance of these charges is reported to be as follows:-
 - (a) The $12\frac{1}{2}$ kg. charge will perforate 4.7 inch armour plate.
 - (b) The 50 kg. charge will perforate 9.8 inch armour plate.
 - (c) A 50 kg. charge followed by a $12\frac{1}{2}$ kg. charge, laid on the same spot, will perforate up to 11.8 inch armour plate.
 - (d) Two 50 kg. charges fired in succession over the same spot will perforate up to 19.7 inch armour plate.

The charge has to be positioned to provide a good contact between its hollowed side and the plate. The hole produced is usually about 3.9 inches in diameter on the exterior surface of the plate and 23 inches on the interior surface.

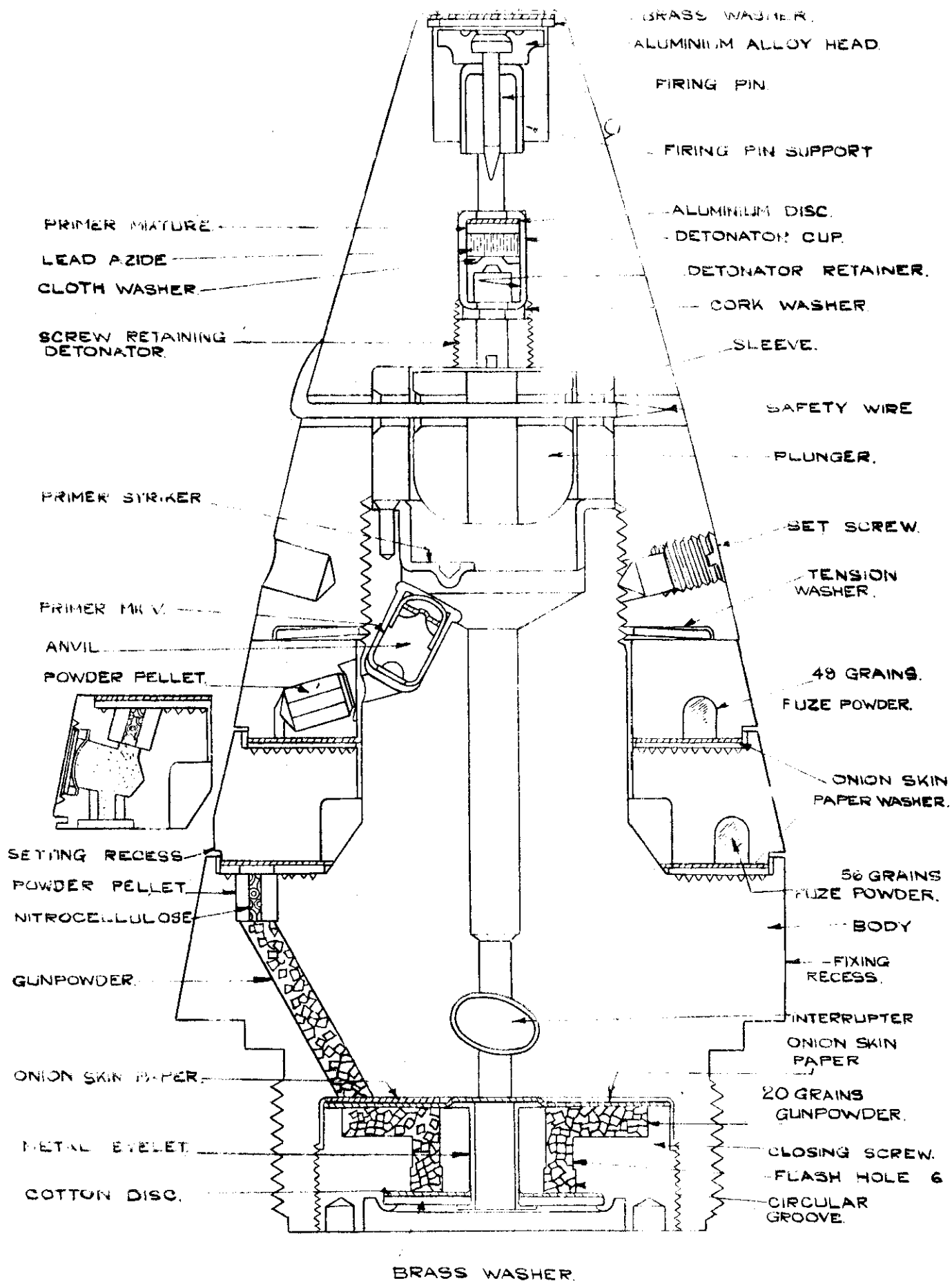
FIG. 207 (ITEM 525)
FUZE, POINT DETONATING T.18E2.
SCALE 2/1



FUZE, TIME AND SUPER QUICK M 54

FIG 208 (ITEM 526)

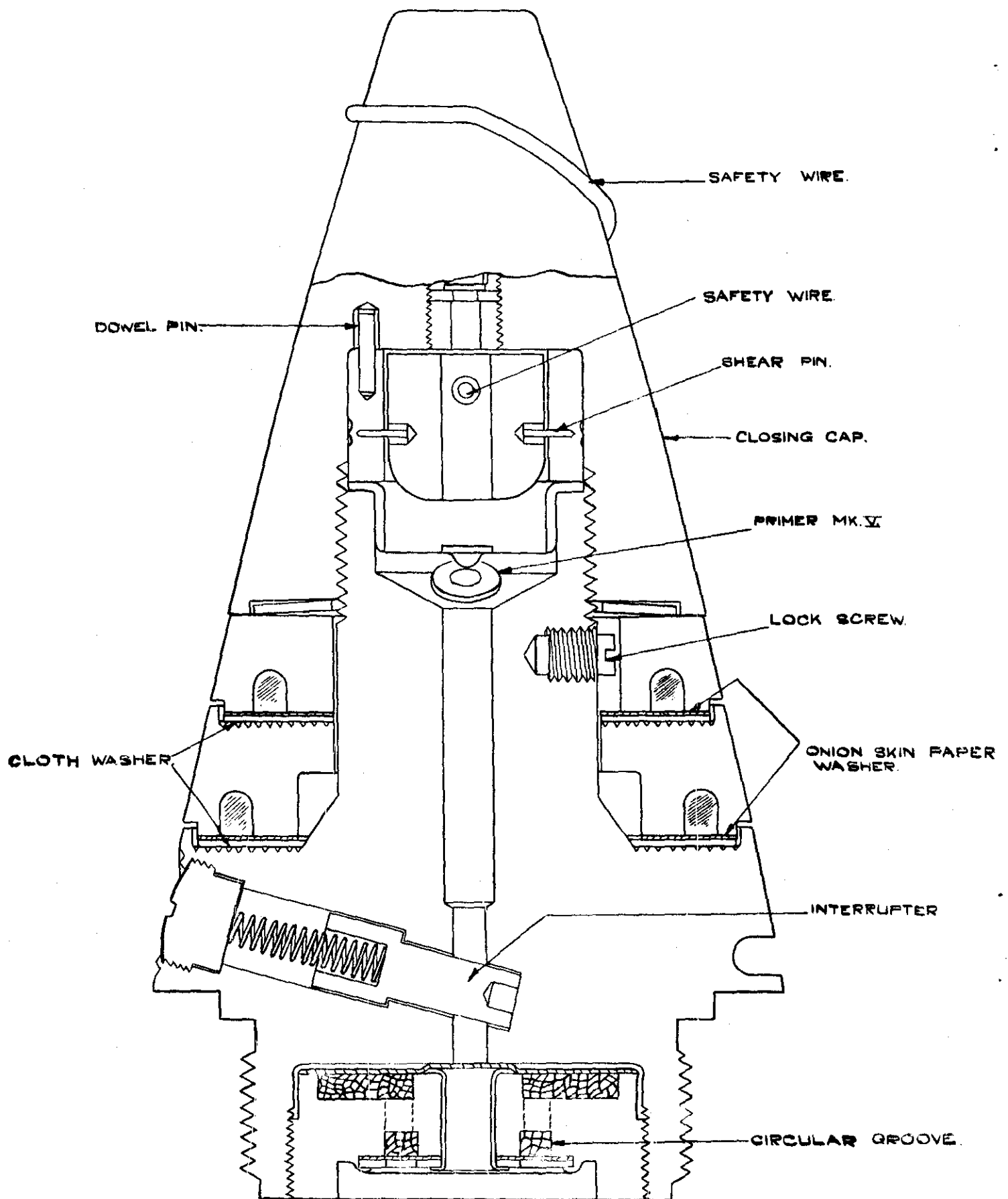
SCALE 3/1.



FUZE, TIME AND SUPER QUICK M. 54.

FIG. 209 (ITEM 526.)

SCALE 2/1.



(FILLING INSTRUCTIONS)
 FUZE TIME, NR 700 MK I / L /
 FOR USE WITH 3" OGIVAL SHELL.

MARKING ON EMPTY FUZE.
 1. NO AND MARK OF FUZE
 2. CONTRACTOR'S INITIALS OR
 RECOGNISED TRADE MARK.
 3. YEAR OF MANUFACTURE

MARKING ON FILLED FUZE.
 +. CONTRACTOR'S INITIALS OR
 MONOGRAM OF FILLING STATION.
 -/- DATE OF FILLING MONTH AND
 YEAR.
 ⊕ LOT NO

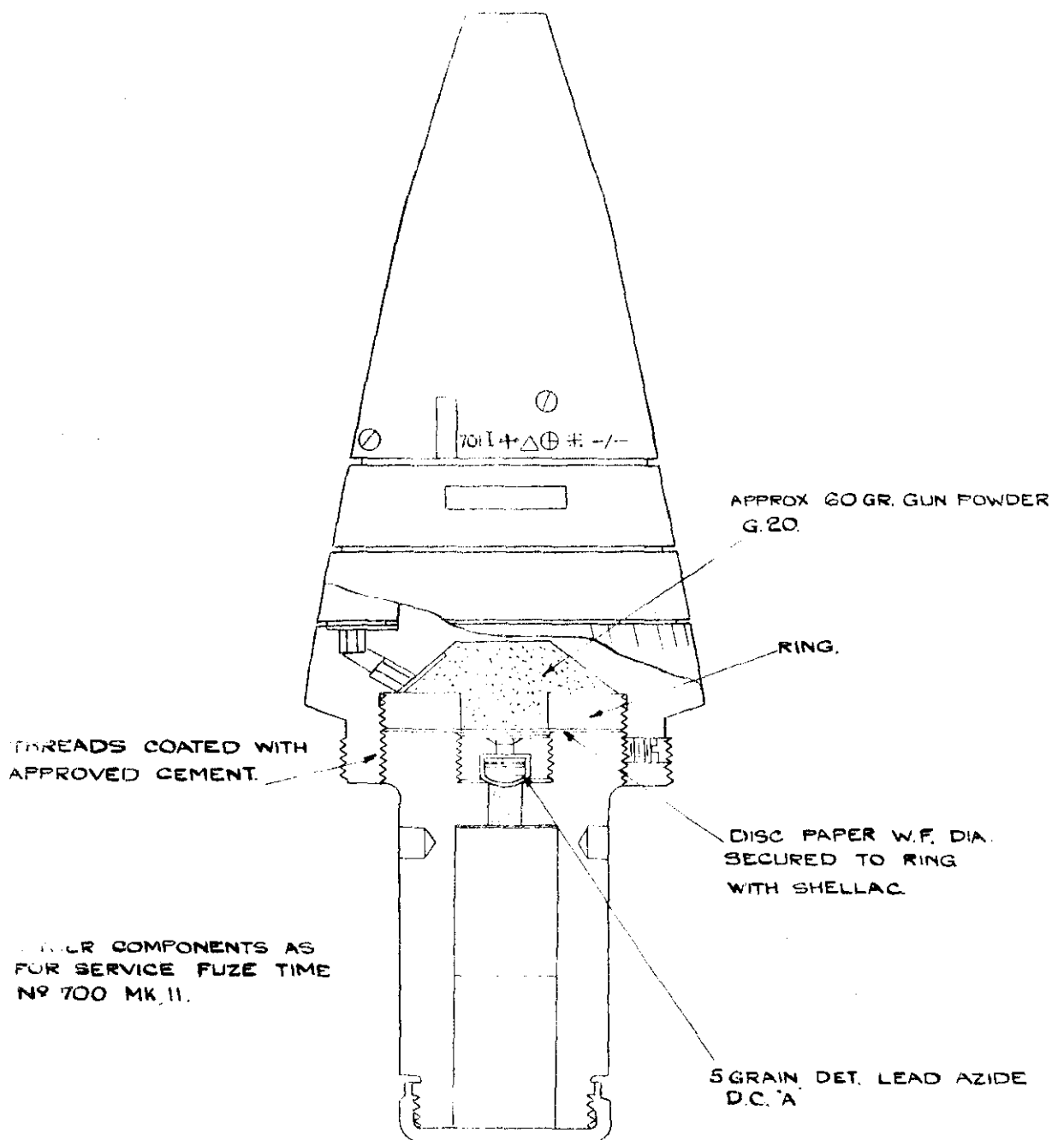


FIG. 211. (Item 528).

SHELL U. H. E. 3-INCH N° 2. MK. I.

M.O.F. 13306.A.

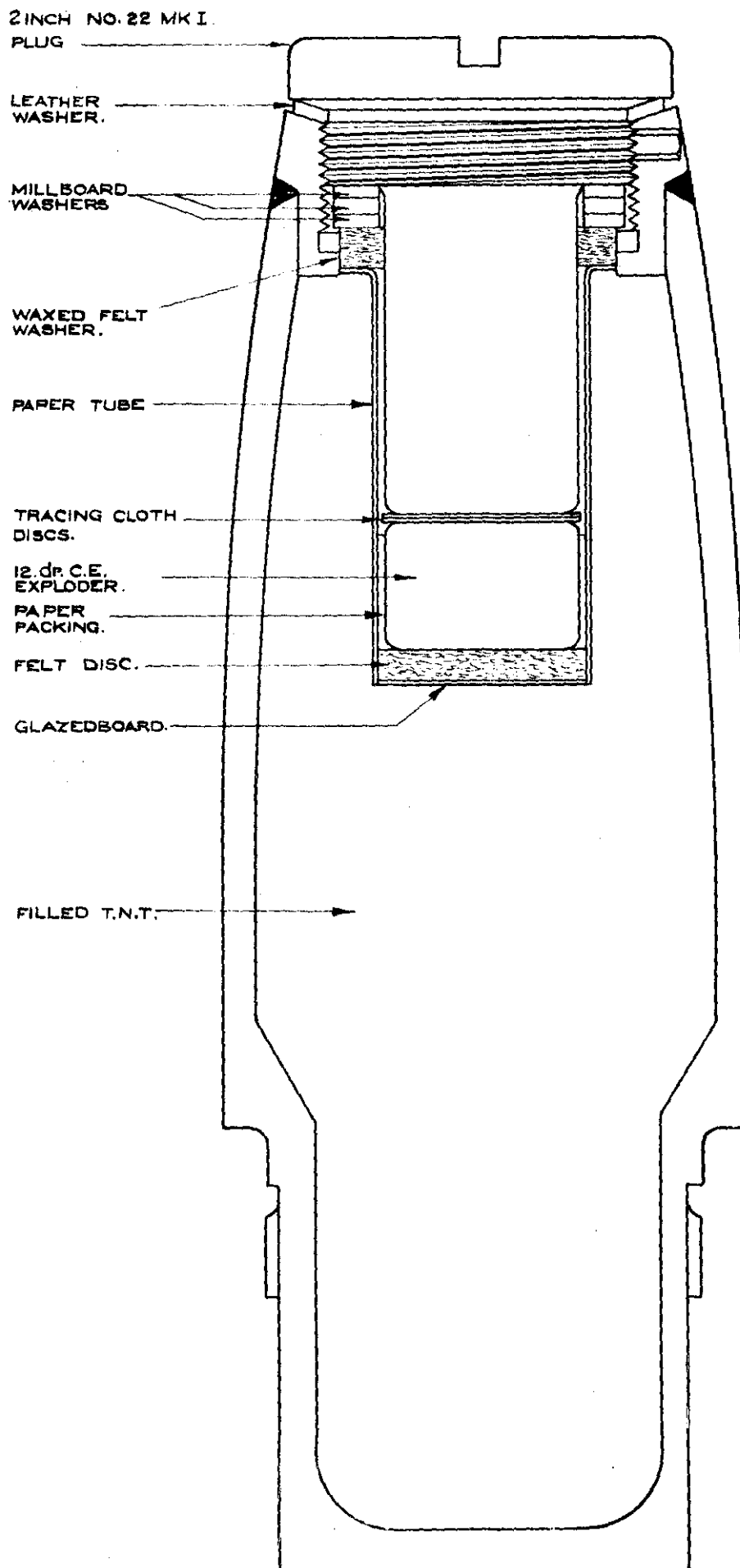


FIG. 212. (ITEM 530.)

SHELL B.L. HE. B.N.F. 15 INCH GUN, MARK. VII.B.
EXPLODER SYSTEM FOR NOSE FUZE.

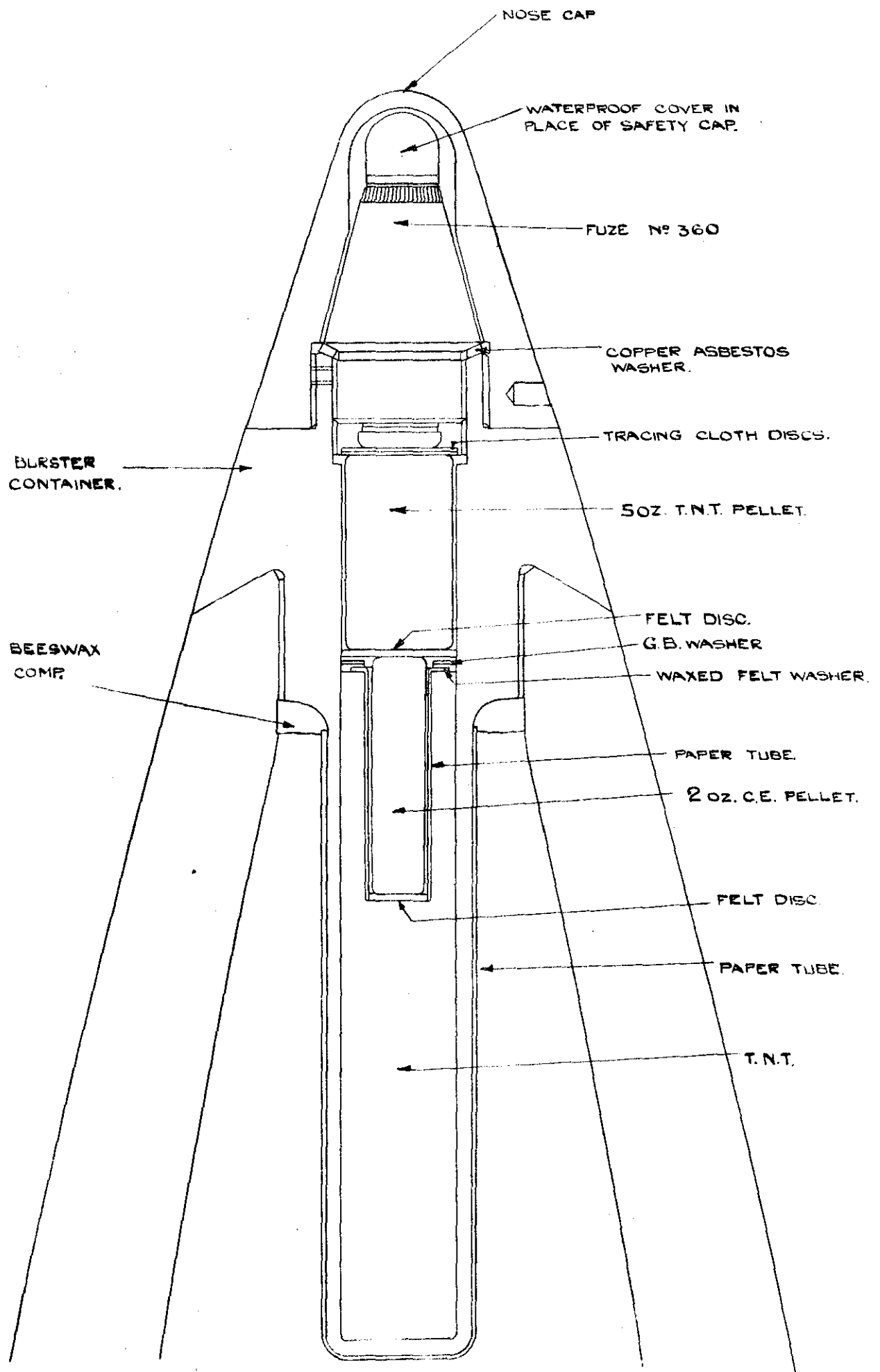


FIG. 213 (ITEM 533)
FUZE, TIME, №198 MK II

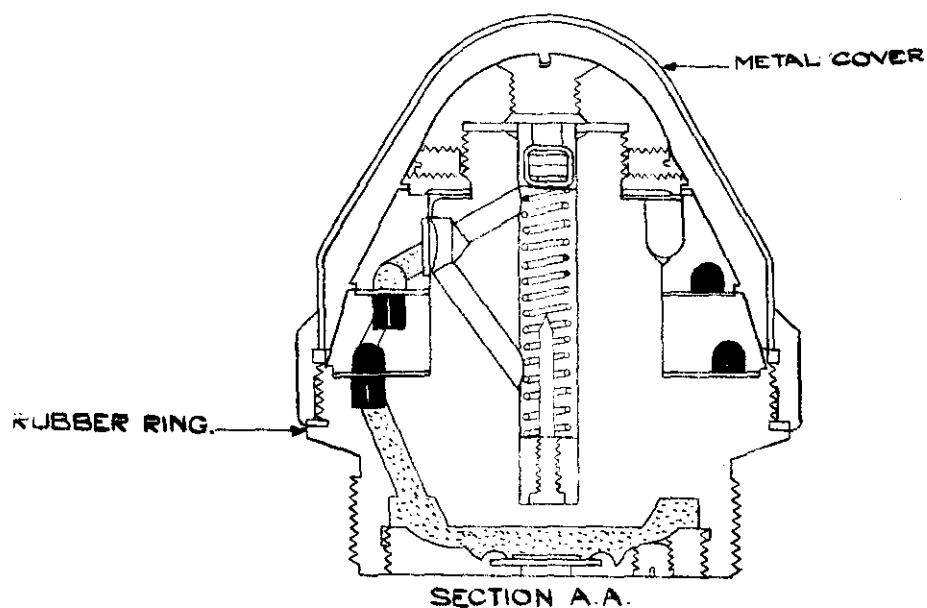
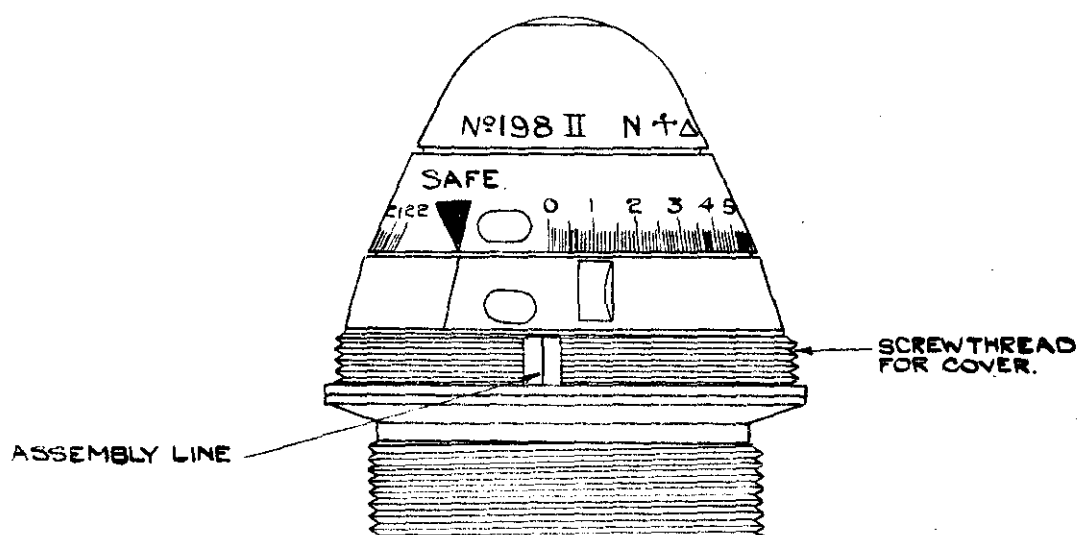
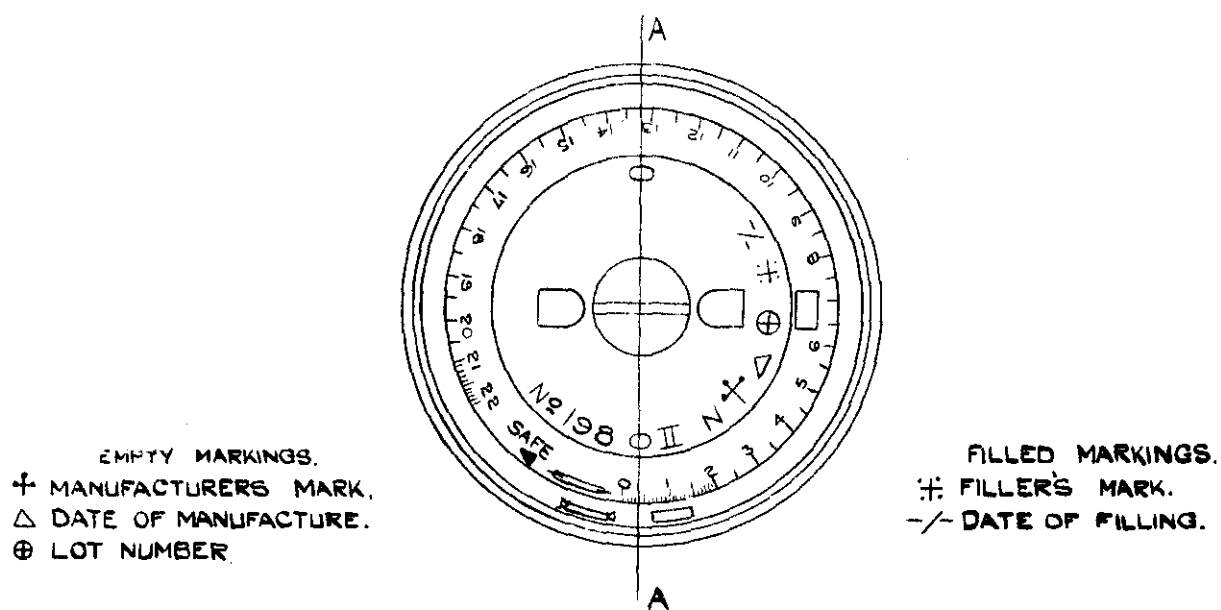


FIG 214 (ITEMS 534 & 548)
FUZES TIME N° 206 MK II 207 MK V & 208 MK I
MUZZLE SAFETY DEVICE.

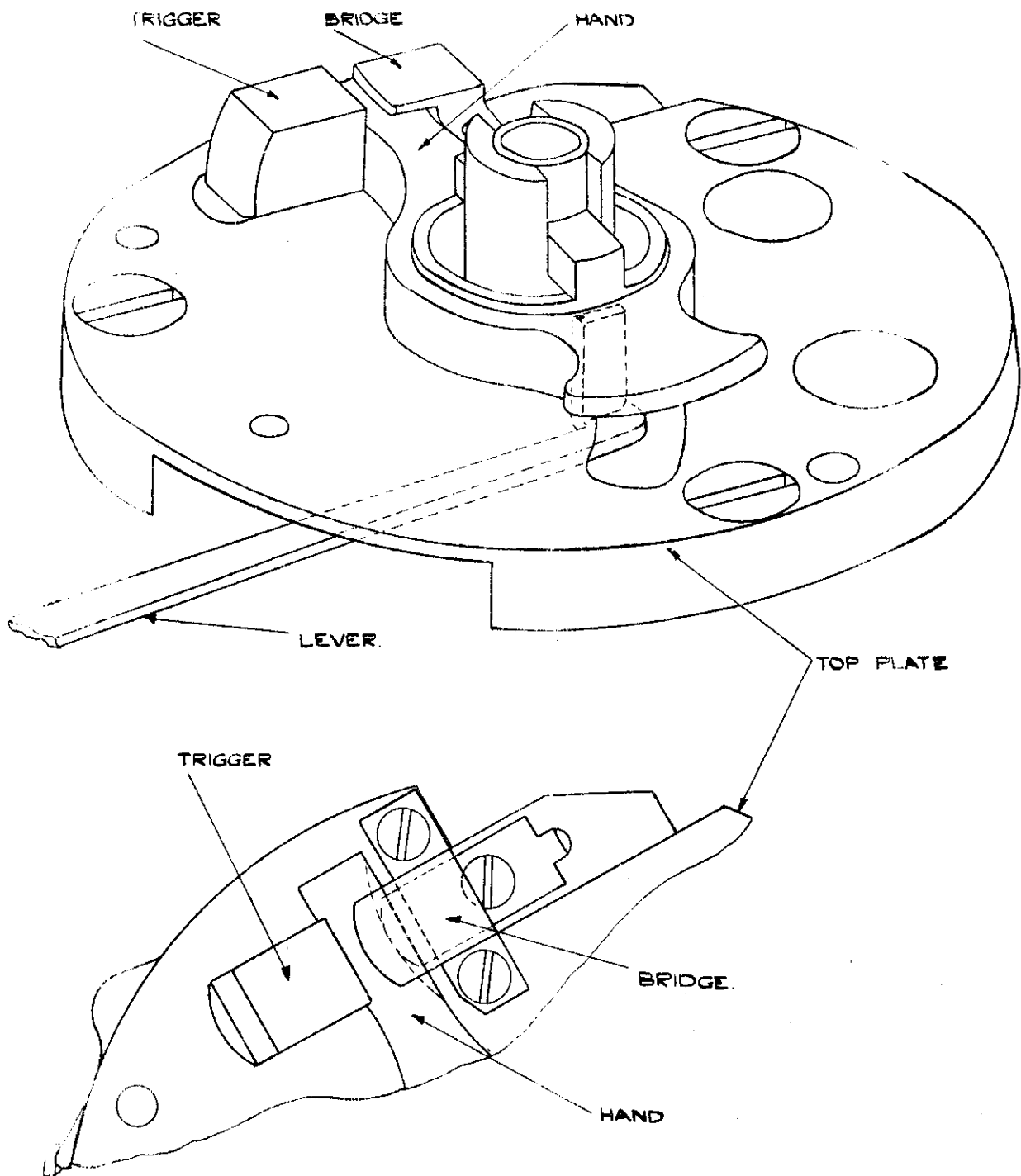
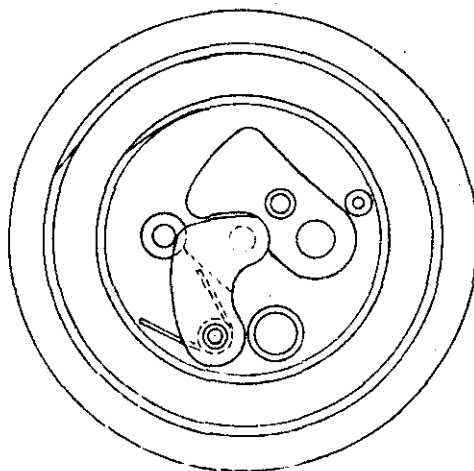
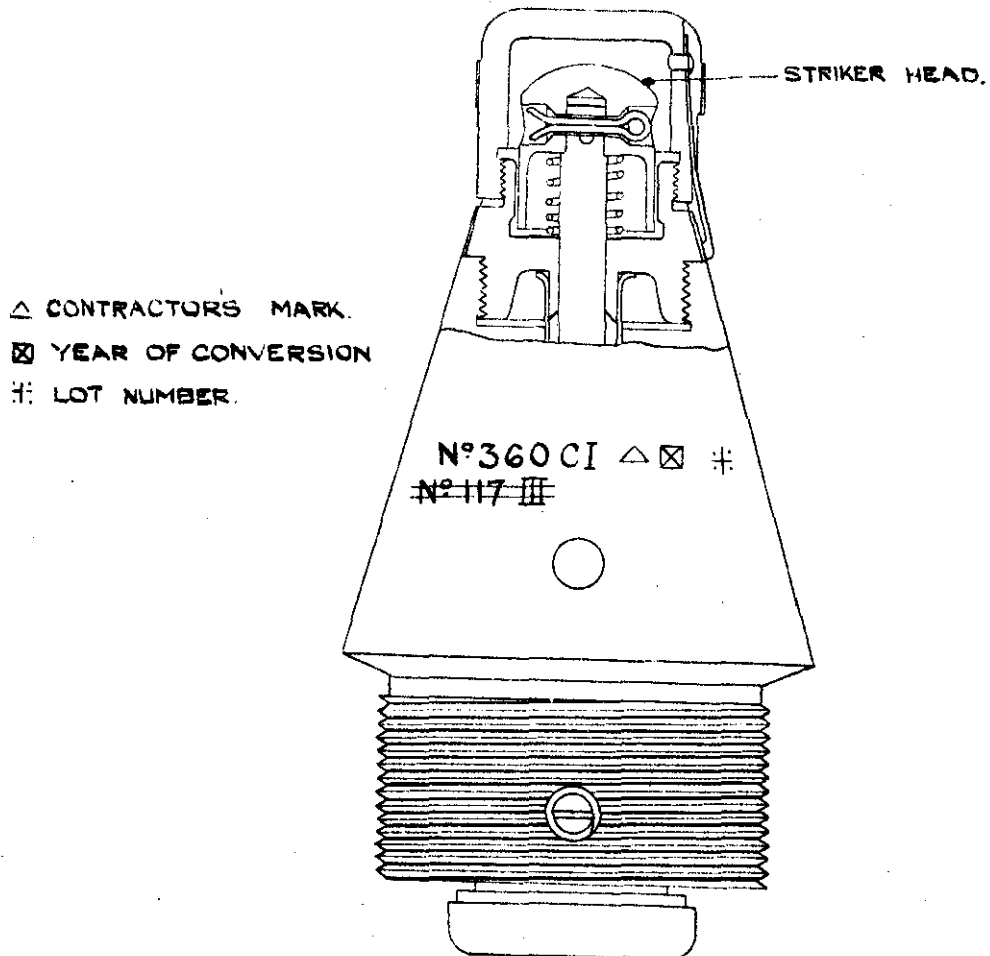


FIG.215 (ITEM 535)

FUZE, PERCUSSION, DA, N°360 C MK.1.



INVERTED PLAN WITH MAGAZINE REMOVED.

FIG. 216 (ITEM 536)
FUZE TIME N° 400.

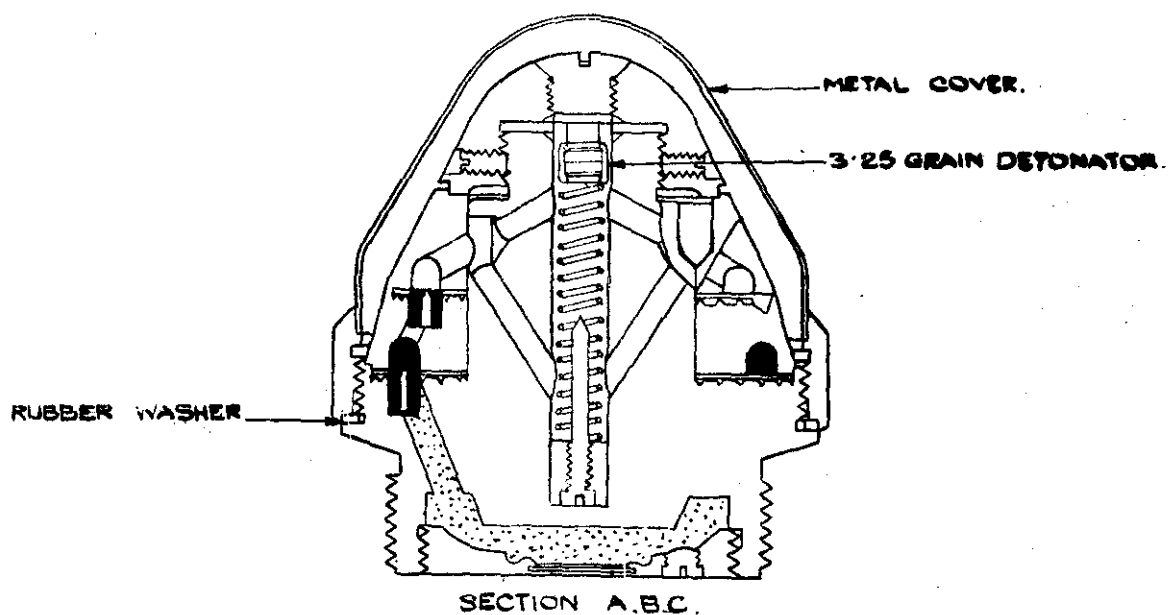
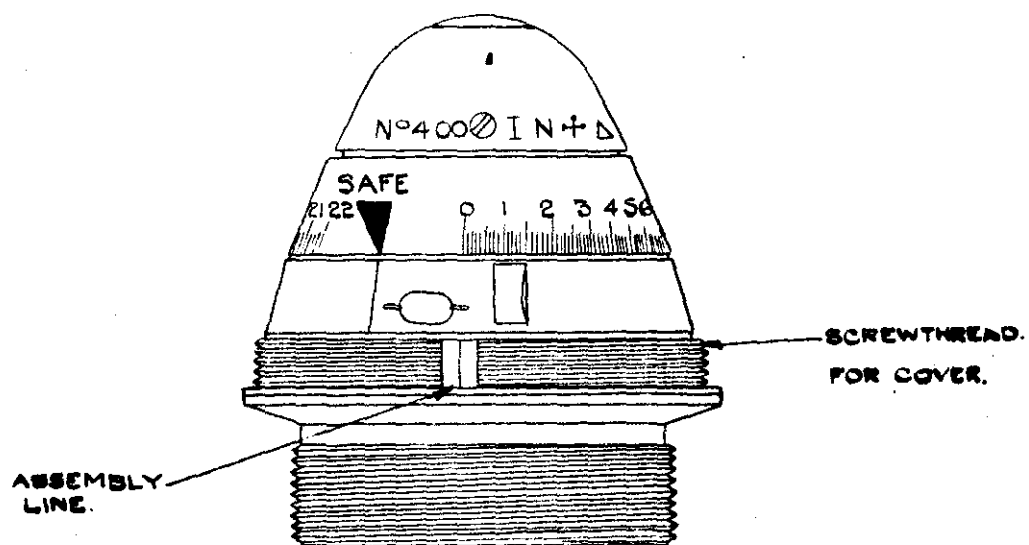
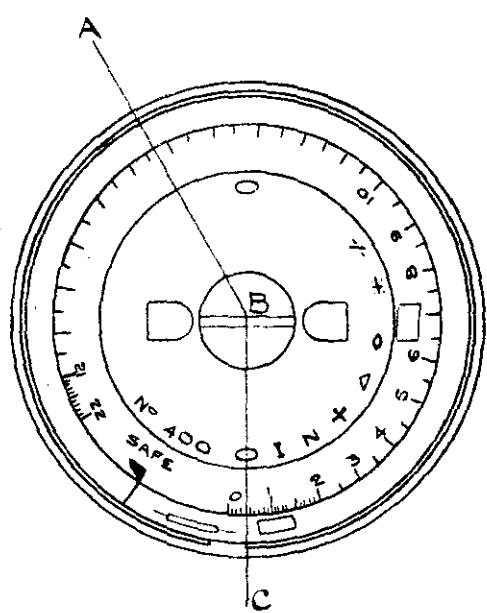
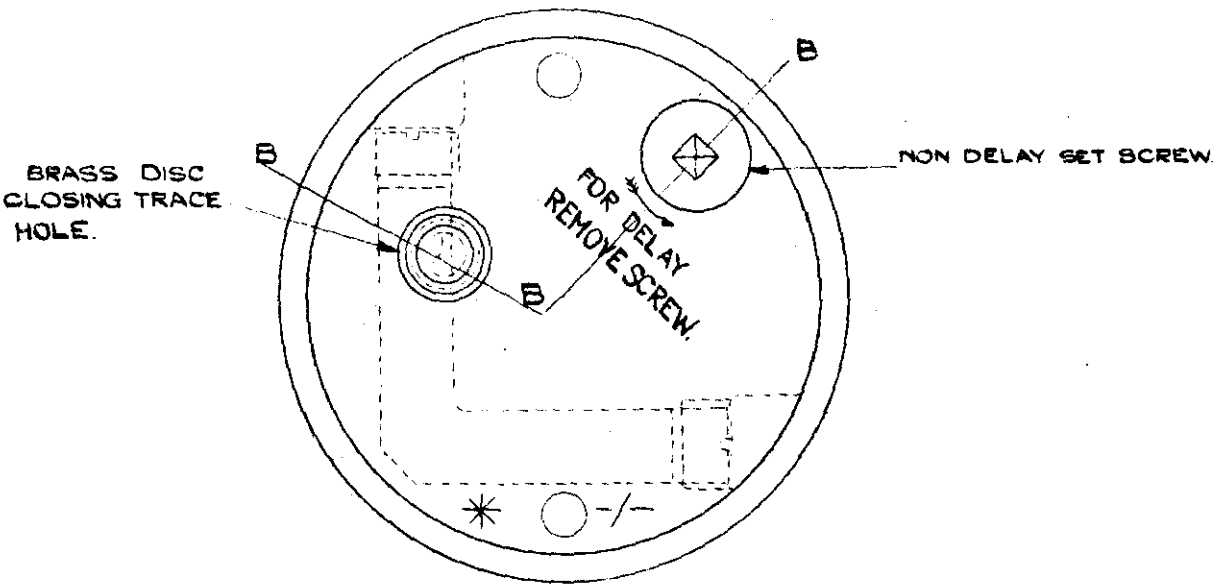
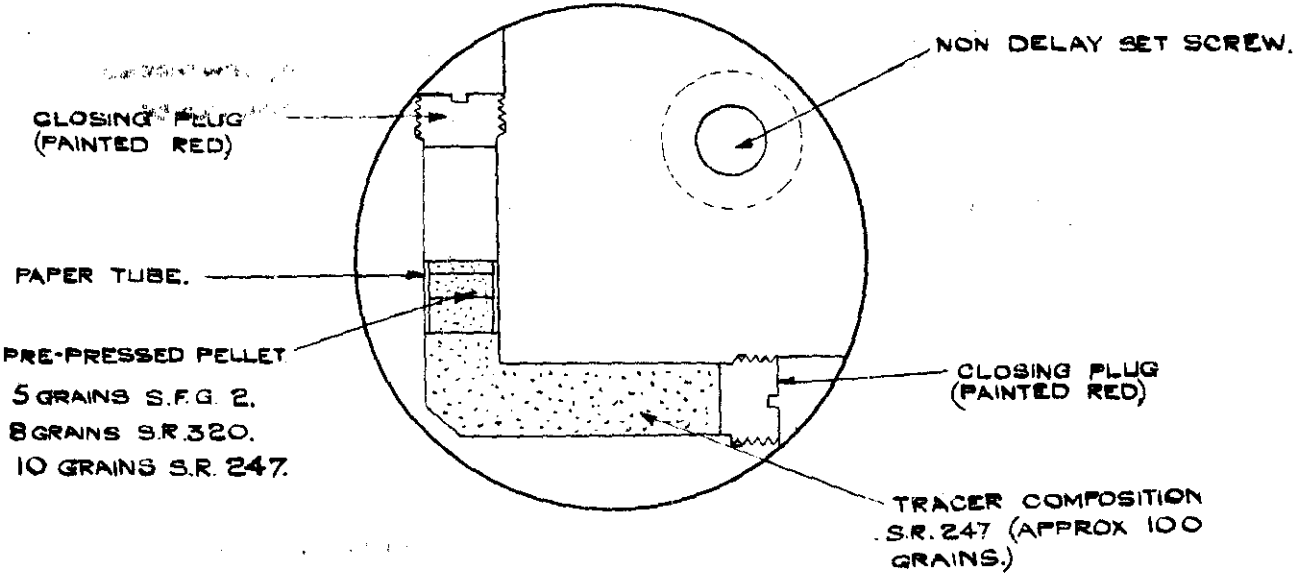


FIG 217 (ITEM 539.)
 TRACER SHELL, N° 8 MK.1.



SECTION A.A.



SECTION B.B.B.

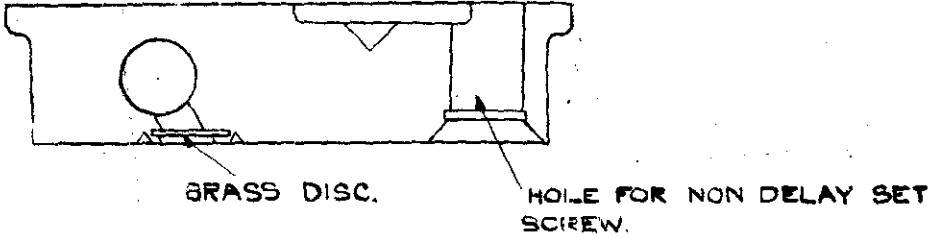


FIG 218 (ITEM 540)
BOMB S.D. III, CHEMICAL, 4.2 - INCH MORTAR MK. I.
METHOD OF HEAD FILLING 13655A.

FUZE Nº152 OR 152.A.

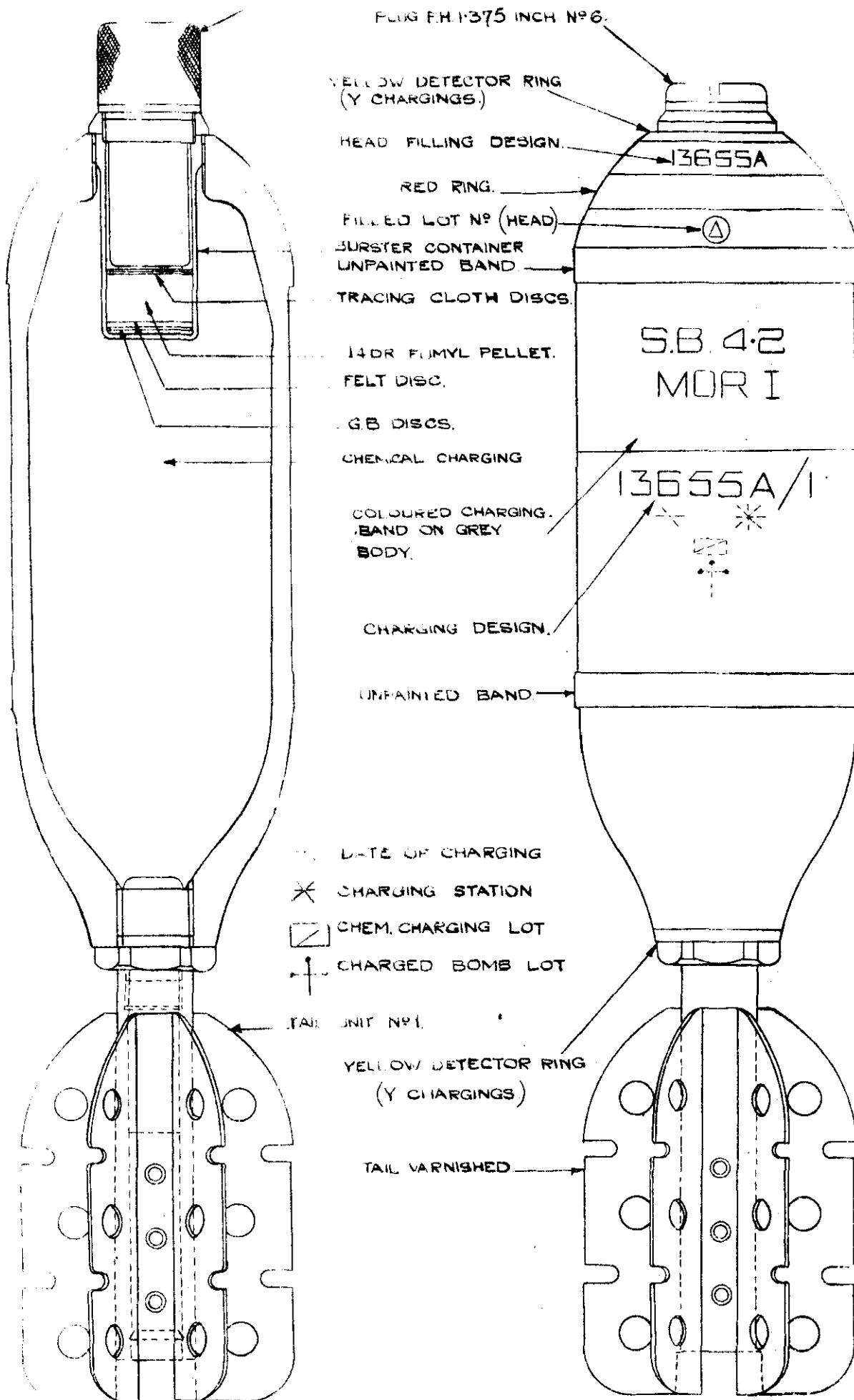


FIG. 219 (ITEM 541.)

BOMB, S.B.M.L., SMOKE, 4.2 INCH MORTAR MK. I.
METHODS OF HEAD FILLING 13668A & CHARGING 13688A / 1

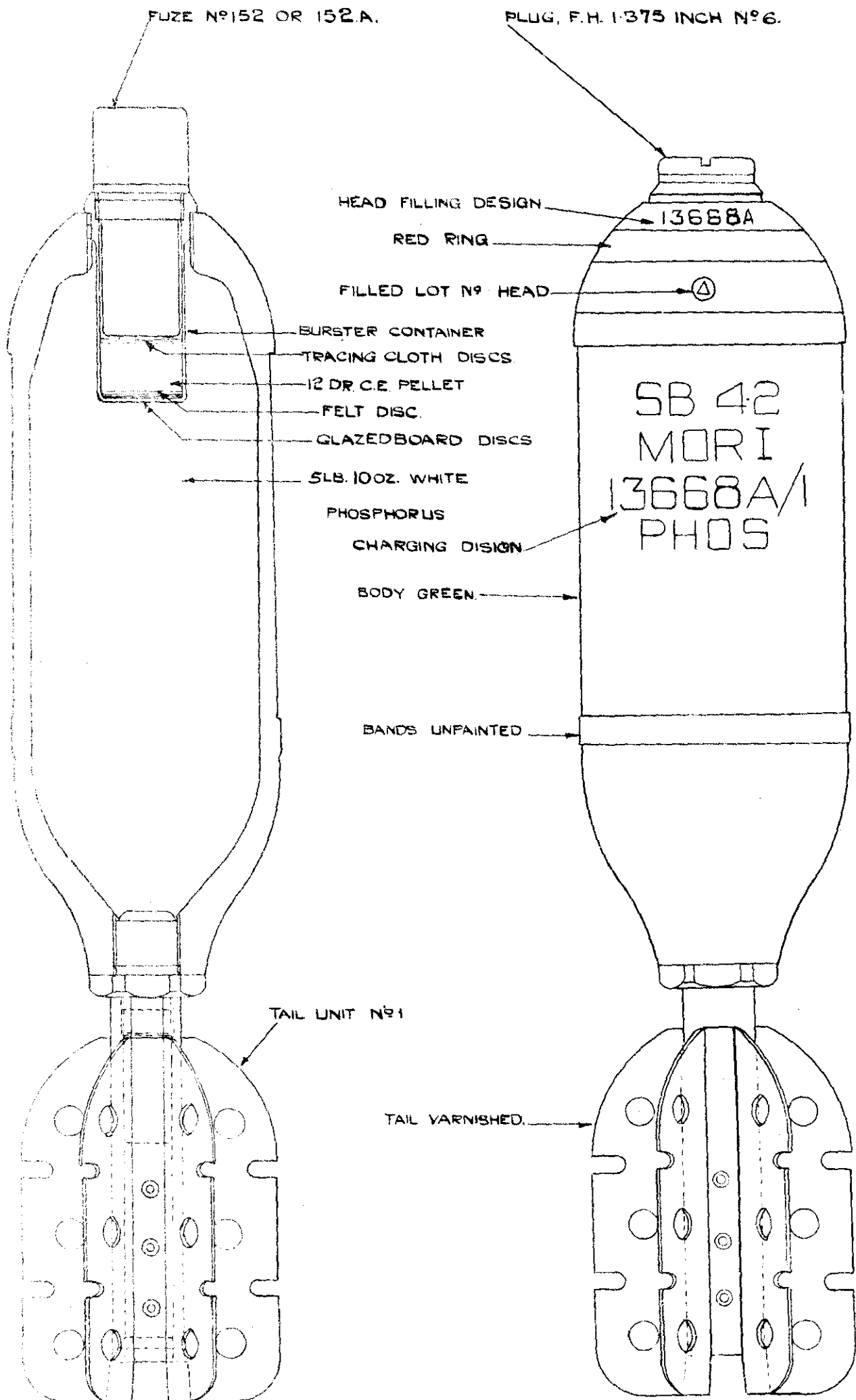


FIG 220 (ITEM 542.)
BOMB, S.B., M.L., H.E., 4.2-INCH MORTAR MK I.
METHODS OF FILLING 13607& 13607.A.

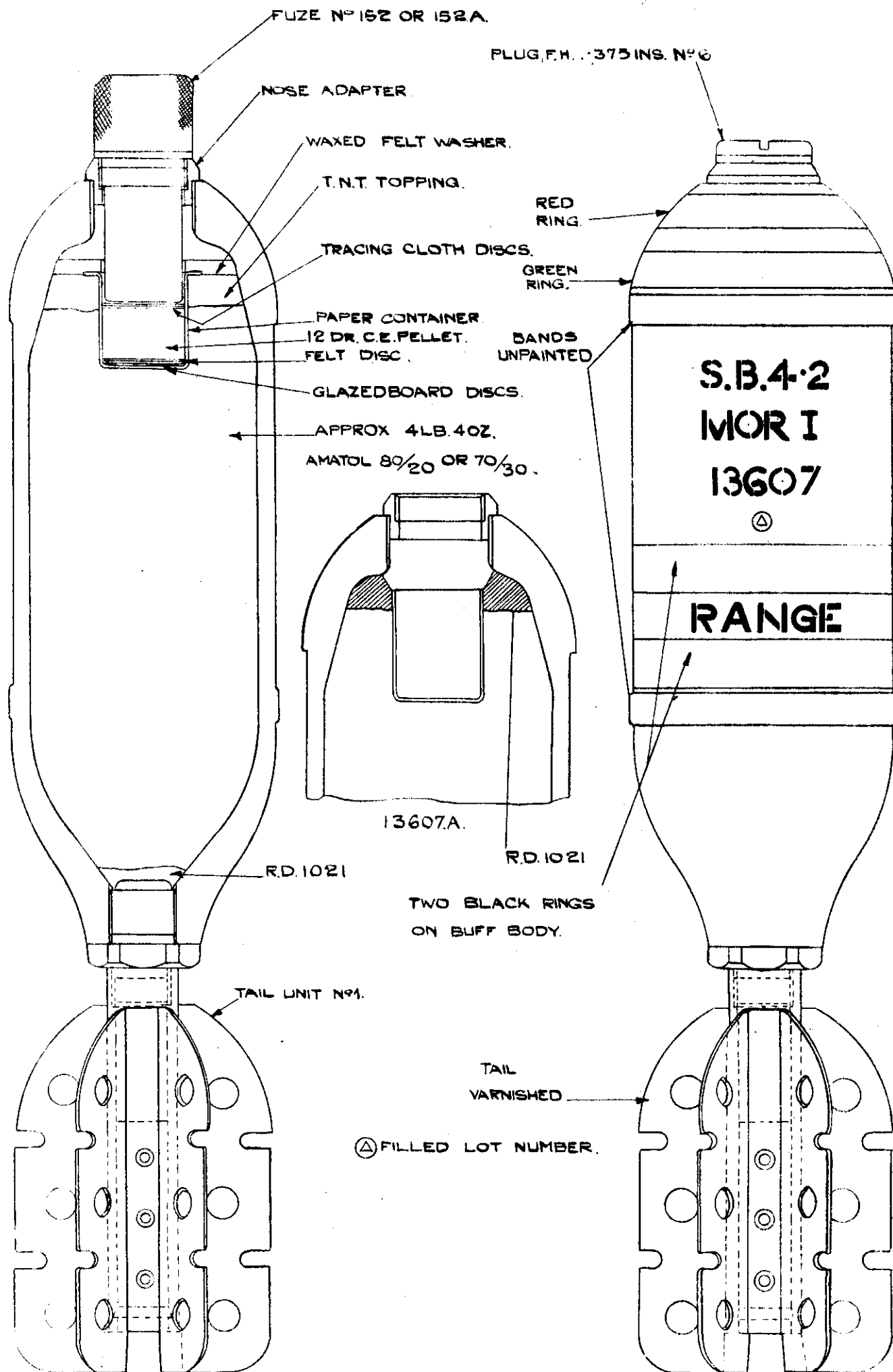


FIG 221 (ITEM 545)

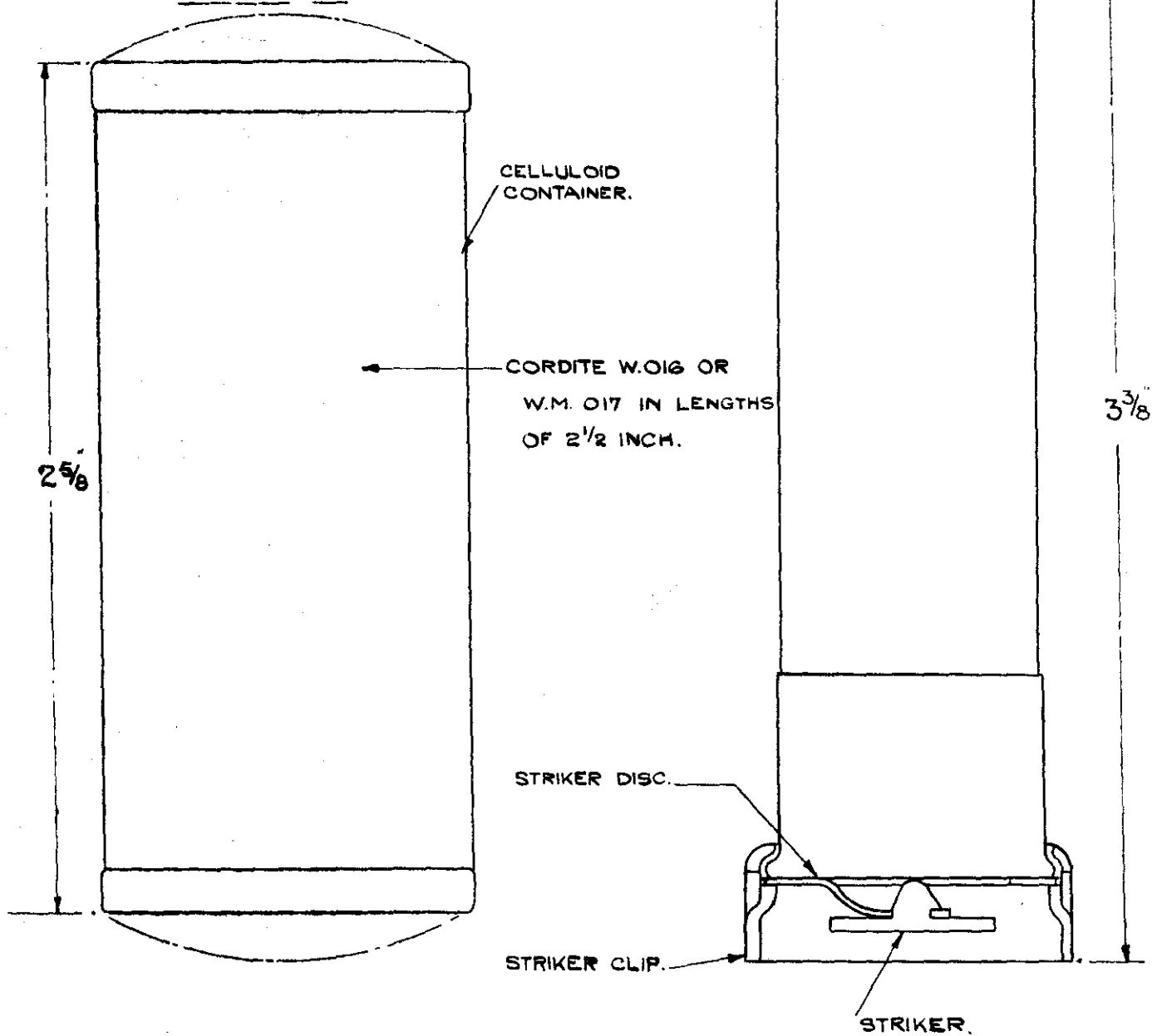
CARTRIDGES S.B. 4.2 INCH MORTAR.

140 GRAINS BALLISTITE B.16. MK. 1.
SCALE, $\frac{2}{1}$

AUGMENTING MK. 1.

350 GRAINS W.O.16 OR W.M.O.17

SCALE $\frac{2}{1}$



140 GR. BALLISTITE B.16. MK. 1.

SCALE $\frac{4}{1}$

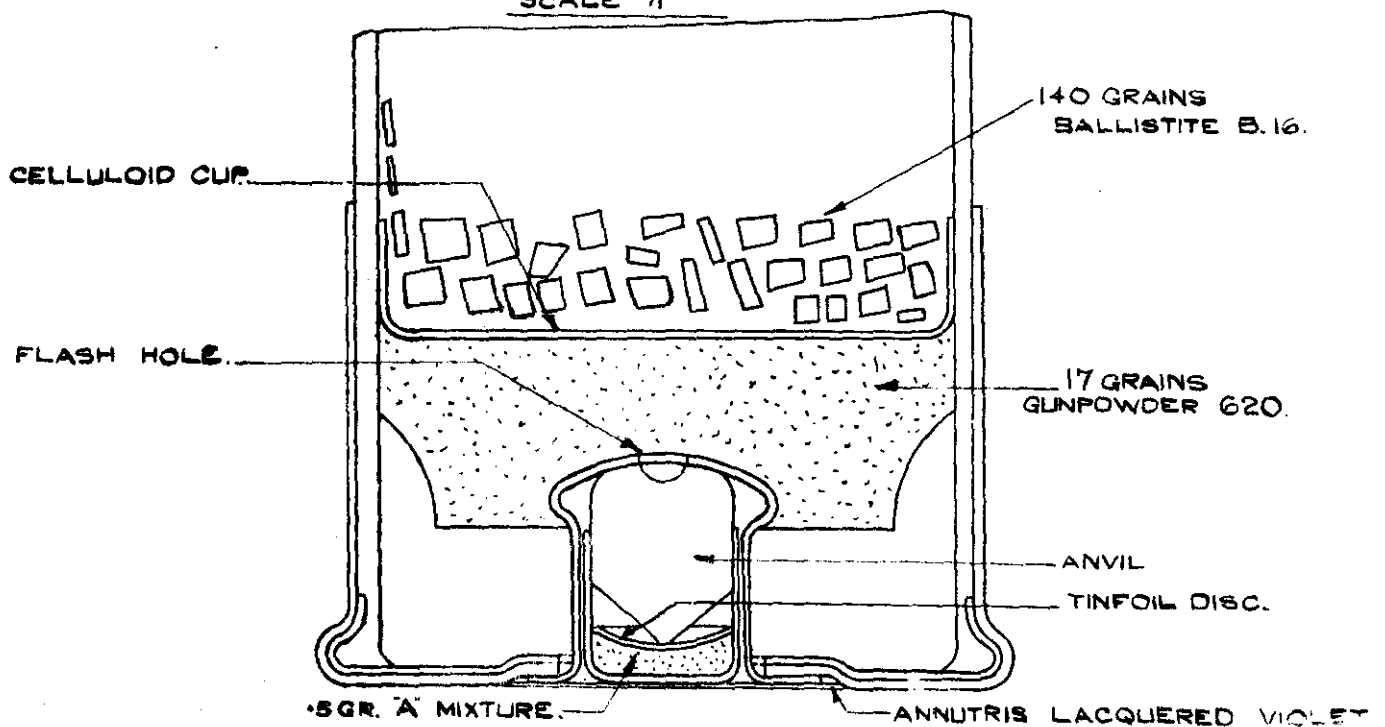


FIG 222 (ITEM 556.)
GERMAN DEMOLITION CHARGES FOR ARMOUR
PLATE.

