51
AMM^N
2850
C.I.A(6)
57529

SECURITY

THIS DOCUMENT IS THE PROPERTY OF H.B.M. GOVERNMENT, and is issued for the information of officers and responsible officials.

The officer or official in possession of the document will be responsible for its safe custody and that its contents are not disclosed to any unauthorized person.

The document will be kept under lock and key when not in actual use.

Officers commanding units and establishments, &c., are responsible that appropriate circulation is given to this document.

AMMUNITION BULLETIN Nº II.

FOR INSPECTING ORDNANCE OFFICERS.

(JULY 1940).

Any person other than the authorized holder upon obtaining possession of this document by finding or otherwise should forward it, together with his name and address, in a closed envelope to the Under-Secretary of State, The War Office, London, S.W.1. Letter postage need not be prepaid; other postage will be refunded.

All persons are hereby warned that the unauthorized retention or destruction of this document is an offence against the Official Secrets Acts, 1911 1920.

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

S E C U R I T Y.

AMMUNITION BULLETIN NO.11.

for Inspecting Ordnance Officers.

Issued ... July, 1940.

Issued by -

Chief Inspector of Armaments,
Woolwich.

Contents:

107. Detail of Aircraft Bombs (A.S., A.P., R.L. etc.) and packages.
108. Cartridge, Q.F. 3.7-inch and 4.5-inch, A.A. - Use of No.1 Primer IN EMERGENCY in lieu of No. 9 or No.11 Primers.
109. Fuze, Time, No.199 - Setting.
110. Proof of Ammunition -
Ctge. A.P. 13.2 mm. and .55 inch A.P.
Generators, Smoke, No.8.
111. Cordite RDN/A. - Testing.
112. Marking of earlier Batched Ammunition.
113. Enemy Ammunition -
German Aircraft Bombs.
114. Information - necessity for collecting and circulating detail of Enemy Ammunition.
115. Amendment to Bulletin No.7.
116. " " No.10.
107a. S.A.A. Packages. Distinguishing markings.

107.

DETAILS OF (A.S., A.P., & R.L. ETC)

DESIGNATION.	MAXIMUM DIMENSIONS IN INCHES		SERIAL Nº AND MARK OF BOX.	CONTENTS OF BOX.	BOX STORAGE DIMENSIONS OR OVERALL LENGTH WHEN TRANSIT BASE IS FITTED.		
	LENGTH	DIAMETER			LENGTH	BREADTH	DEPTH
BOMB H.E AIRCRAFT A.S.							
100 LB. MK. I	42·16	8·09	B.235 MK I OR II.	ONE BOMB TAIL ASSEMBLED OR UNASSEMBLED	54·25	13·25	14·25
" MK. II	—	—	"	"	"	"	"
" MK. III	42·52	8·21	B.235 MK III OR B.260 MK.I	ONE BOMB TAIL ASSEMBLED OR UNASSEMBLED	53·75	13·25	13·75
" MK. IV	—	"	—	ONE BOMB TAIL UNASSEMBLED	43·5	13·25	14·25
" BODY.	24·2	8·21	—	—	28·5	—	—
250 LB. MK. III	59·0	11·26	B.262 MK.I	ONE BOMB TAIL UNASSEMBLED	57·25	16·5	17·75
MK. IV	57·83	11·39	—	—	—	—	—
BODY.	35·25	"	—	—	39·67	—	—
B. MK. III	75·87	14·36	B.261 MK I	ONE BOMB TAIL UNASSEMBLED	73·5	20·75	22·5
" MK. IV	72·68	14·34	—	—	—	—	—
" BODY.	49·11	"	—	—	53·64	—	—
A.P. 450 LB. MK. I	66·26	9·16	B.226 MK I	ONE BOMB TAIL UNASSEMBLED	71·75	16·75	17·25
" MK. II	65·17	"	B.240 MK II	ONE BOMB TAIL ASSEMBLED OR UNASSEMBLED.	73·0	16·75	17·25
2000 LB. WITH Nº 1 TAIL MK. I	112·72	13·48	—	—	—	—	—
R.L. 112 LB. MK. VII M.	25·1	9·0	B.98 MK I	—	35·125	17·375	17·625
" MK. VII C.	31·5	9·0	B.253 MK.I	—	38·25	16·5	16·5
250 LB. MK. I M.	31·25	12·65	B.96. MK.I	—	43·125	19·375	20·375
230 LB. R.F.C. III	50·9	10·0	B.22. MK.I	—	56·25	19·25	19·25
520 LB. MK. I M.	61·1	19·0	B.95. MK.I	—	68·25	25·0	25·0

NATURE OF FILLING INDICATES AS FOLLOWS:-

△ FILLED T.N.T.
⊙ " BARATOL.
+ " AMATOL.
⊠ " SHELLITE.

AIRCRAFT BOMBS. WITH PACKAGES ETC.

TRANSIT BASE	TAIL PACKING & STOWAGE	MEAN WEIGHT OF BOMB EMPTY LBS.	APPROX: WEIGHT OF BOMB FILLED LBS.	APPROX: WEIGHT OF BOX WITH EMPTY BOMB LBS.	APPROX: WEIGHT OF BOX WITH FILLED BOMB LBS.	EXPLOSIVE QUANTITY * LBS.	MARKING ON BOX	MARKING ON BOMB.
—	—	41 1/2	△ 93 ◎ 96	123 1/2	175 178	50·0 53·0	NO SPECIAL MARKING GENERAL INFORMATION ONLY.	PAINTED YELLOW. RED RING AROUND NOSE. GREEN BAND AROUND BODY; WITH T.N.T., ON BAND WHEN SO FILLED. MKS I, II & III ARE FILLED T.N.T. OR BARATOL. WHEN FILLED BARATOL THE LETTERS, B.A.R. ARE STENCILLED ON GREEN BAND WITH A FRACTION, eg. 10/90 BELOW THE BAND. MK IV IS FILLED T.N.T. OR R.D.X./T.N.T. WITH R.D.X/T.N.T. FILLING THE FRACTION eg. 60/40 IS STENCILLED ON THE BODY.
—	—	40 3/4	△ 93 ◎ 96	123	174 177	50·75 53·75		
—	—	33 3/4	△ 89 ◎ 92	124 110	179 182 165 168	53·5 56·68		
—	—	48	93	—	—	43·0		
N° 18 (STEEL)	CONTAINER B.301 HOLDS 1 TAIL & PISTOL 18·4 X 8·8 DIA CONTAINER B. 309 HOLDS 1 TAIL 18·4 x 8·8 DIA.	42	87	—	—	"		
—	—	88	△ 230 ◎ 236	220	362 368	140·75 146·75	AS ABOVE	AS FOR 100 LB. A.S. BOMB MK. IV ALSO FILLED R.D.X/T.N.T.
—	—	106	△ 241	—	—	132·75		
N° 19 (STEEL)	CONTAINER B.310 HOLDS 1 TAIL 23·75 X 12·25 DIA.	97	△ 232	—	—	"		
—	—	167 1/2	△ 467 ◎ 478	428	727 738	297·5 308·5	AS ABOVE.	AS FOR 100 LB. A.S BOMB.
—	—	204 1/2	△ 485	—	—	279		
N° 20 (STEEL)	CONTAINER B.311 HOLDS 1 TAIL 24·7 x 15·25 DIA.	187 1/2	△ 468	—	—	"		
—	—	381	—	—	—	—	AS ABOVE.	PAINTED YELLOW, WITH A RED RING BETWEEN TWO WHITE RINGS ON NOSE. GREEN BAND AROUND BODY WITH T.N.T. ON BAND.
—	—	381	△ 437	491	537	46		
N° 9 (STEEL)	BOX B.245. MK I 38·5 x 17·5 x 17·5 —	1754	⊠ 1924	—	—	170	—	BODY PAINTED YELLOW. NOSE PAINTED GREEN WITH A RED RING BETWEEN TWO WHITE RINGS. A FRACTION eg 50/50 APPEARS ABOVE THE BANDS.
—	—	82	△ 109	155	182	27	GENERAL INFORMATION ONLY "NOT TO BE ISSUED TO H. M. SHIPS"	PAINTED YELLOW. RED RING AROUND NOSE GREEN BAND AROUND BODY WITH LETTERS T.N.T. ON BAND WHEN SO FILLED.
—	—	82	△ 109	151 3/4	178 3/4	27		
—	—	139	† 247	281	379	98		
—	—	100	† 210	212	322	110		
—	—	180	† 460	370	650	280		

* CALCULATED IN ACCORDANCE WITH PARA. 23. MAGAZINE REGULATIONS PART I 1934.

108. Cartridges, Q.F. 4.5-inch and 3.7-inch A.A. Substitution of No.1 Mk.II Primer for No. 9 or No. 11 on emergency.

In W.O. letter 43/A.A/861 (T.O.2.) and in "Notes on the care and preservation of A.A. ammunition at gun sites" it is laid down that in the case of equipments fitted with hand or power operated ramming devices, Q.F. cartridges rammed and subsequently unloaded must be considered as unserviceable until fitted with a fresh primer.

In view of this it is possible that a number of Q.F. 4.5 and 3.7-in. AA cartridges may be set aside as unserviceable in cases where no spare No.9 or 11 primers are yet available. In these circumstances it is pointed out that the No.1 Mk.II primer, used in 3" 20-cwt. may, if available, be used on emergency in Q.F. 4.5 and 3.7-inch A.A. cartridges.

109. Fuzes, Time, No.199.

Only Marks IIA, III and IV of the above fuzes can be used in automatic fuze setters. The Marks I and II fuzes cannot be used in the setter owing to the time rings not engaging the fuze setter pawls. These marks of fuzes should, therefore, be kept apart from other marks and set by hand, using Key No.120.

110. Proof of ammunition.
Cartridges, A.P. 13.2 mm. and .55-inch

These cartridges should be subjected to proof on reaching five years of age. The proof should be generally similar to that for .303-inch or .5-inch ammunition, i.e. -

Range ... 500 yards.
No. of rounds 20 (Two diagrams of 10 each).
Figure of merit - 18 inches or less.

Generators, Smoke, No.8.

The percentage for proof should be in accordance with R.A.O.S. Part II, Pamphlet No.12, Section 1.B, para.4.

They must ignite readily and an effective volume of smoke must be emitted not later that 10 seconds after ignition. Partial volume of smoke must be emitted not later than 5 seconds after ignition.

Smoke emission after the working up period must be smooth and regular. The effective smoke emission must continue for at least 2 minutes and 20 seconds and must cease not later than 3 minutes and 15 seconds after emission.

111. Cordite RDN/A.

The following provisional Table governs the testing of the above Cordite :-

contd..

111. - contd.

Heat test at 150°F.	Colour number.	Sentence.	
		Mean temp: of storage below 80°F.	Mean temp: of storage 80°F. or over.
Over 4'	Below 5.	Retest after 2 years.	Retest after 1 year.
4' or under.	5 or over.	The results of the test will be immediately reported to the Chief Inspector of Armaments, Royal Arsenal, Woolwich, and the Cordite will be isolated, if practicable, pending the receipt of further instructions.	

Note: If two tests give different sentences when applied to the same sample, the test indicating the lower stability will be taken.

Until such time as instructions are received for the colour test of cordite of this nature it should be sentenced on results of Heat tests only.

112. Marking on earlier batched ammunition.

Wooden boxes containing batched ammunition may be found with a yellow interrupted line on the sides of the box. This marking has no significance; it is no longer used and should be disregarded.

113. Enemy ammunition. German aircraft bombs.

Fig. 19 shows an E.L. A.Z. C.50 electric fuze with exploderring system as recovered from a German 50 Kg. H.E. Bomb. The body of the fuze is of aluminium and the internal arrangements are similar to those described in Bulletin No.5, item 47. Several cases of delay acting fuzes have been reported but up to the present no information is available regarding the method of delay employed or of any special fuze markings.

It is cylindrical in shape and is secured in the exploder container by one of the three following methods (Fig. 20) :-

(a) by a slotted steel ring which is prevented from rotating clear of its studs by two set screws.

(b) by two or more curved steel pins.

(c) by a slotted and threaded retaining ring.

The body of the fuze is recessed and threaded at the base to take a steel gaine. The gaine is surrounded by a ring pellet of picric acid weighing about $2\frac{3}{4}$ ozs. below which is a larger solid picric acid pellet of $3\frac{3}{4}$-ozs.

Markings on fuze/.

113 - contd.

Markings on fuze.

Designation	German	English
E.L. A.Z. C.50	Electrische Aufschlag Zunder	Electric impact fuze.
R.h. S. 1939	Rhenische Stahl - Werke.	Rhine Steel Works.

To remove the fuze, place one hand on the head of the fuze and, with a small screwdriver in the other, ease off the two retaining ring set screws. Move the ring round and upwards clear of the studs. During this operation retain the hold of and pressure on the fuze head so that, when the retaining ring is clear, the fuze may gently be withdrawn about one-sixteenth of an inch or so sufficient to enable it to be ascertained if there is pressure being exerted on the fuze by a spring under it. The object of this test is to protect the operator as far as possible against booby traps. If there is a spring pressure gently replace the fuze and arrange to destroy the bomb at once.

Should there be no such pressure, have a roll of adhesive tape handy, whilst withdrawing the fuze very slowly, watch it all round the body for signs of pins or studs which may initiate action, and bind the body tightly with the adhesive tape as it emerges from the container and has been inspected, so that no such spring loaded studs or pins can operate.

In bombs of later manufacture the retaining ring can be unscrewed by a special key, the dimensions of which are shown in Fig. 21, the same precautions being observed. In the case of fuzes secured by steel pins these can be removed with a small screwdriver.

It should be noted that, if it were not for the possibility of booby traps or damage to the fuse or exploders on impact, the fit of the fuse and two exploder pellets in the container is such that fuse and pellets would fall out when the bomb is turned gently over on its side with the retaining ring removed.

A sketch of a blind German 250 Kg. aircraft bomb, recovered from the deckhouse of a merchant ship is shown in Fig. 22. It is generally similar to that described in Bulletin No.5, item 44. The filling is T.N.T. equivalent to Service Grade I and the explodering system consists of a column of twelve pressed T.N.T. pellets contained in a varnished paper tube running longitudinally but not quite centrally throughout almost the entire length of the bomb. This column touched the two fuze and exploder containers and passed beyond them.

The following factors were considered before deciding to defuze this bomb in situ :-

1./

113 - contd.

1. In view of the restricted opening in the deck-house in which the bomb came to rest, it was considered dangerous to remove it without first removing the components.

2. The bomb had been on the ship nine days. It was therefore considered that the condensers would have lost, through leakage, any potential they might have possessed.

3. It was considered unlikely that any booby trap system would be used when bombing ship targets at sea.

4. The party had previous experience with this type of fuze.

5. It was felt that the blast of any explosion would be largely expended in collapsing the deckhouse and, therefore, the site was not a grave menace to other shipping.

The fuze is the usual electrical type, two being employed. The fuzes were first tested before removal by earthing them to the bomb body and then to the fuze body through a milliammeter. Having ascertained that they were no longer charged the retaining ring of each fuze was removed using the handles of a pair of pliers as a key. The fuze body was then eased with a penknife and lifted out. The bomb body was rolled over and the exploders allowed to fall out.

Weight of bomb with tail - 546-lbs.
" " without " - 520-lbs.
" " explosive filling - 300¼-lbs.

German fuze.
D.A. Percussion fuze A.Z. 150 R.h.S. (Fig. 23)

The A.Z.150 is an extra sensitive fuze with an explosive safety devise armed centrifugally.

It consists of a brass fuze body on which is screwed a nose retained by a screw. The body is prepared to take a detonator with gaine.

The percussion arrangements consist of :-

(a) A striker kept in a safe position by a centrifugal bolt which fits under a flange below the head of the striker.

(b) A hammer with an enlarged head to increase the sensitivity of the fuze.

(c) A safety arrangement consisting of a catch resting on a pellet of compressed gunpowder. The catch is held with its top rounded surface bearing against the inclined plane of the centri-fugal bolt and thus prevents the bolt from moving outwards.

The powder pellet is connected through cylindrical horizontal passages to two vertical recesses, one of which contains a primer supported over a needle by a spring. The other recess, identical in size, was empty in the fuze examined.

Action/

Action.

On firing, the primer sets back on to the needle and is ignited. The flame passes through the horizontal passage and ignites the powder pellet, When the pellet is fuzed, there is no longer any support for the catch and the centrifugal bolt is thus free to fly outwards. This frees the striker, but creep action, due to deceleration in flight and the protection of the cover plate, keeps it from the detonator until it is driven in on impact. This fuze is employed in shell for 20 mm. aircraft and A.A. guns.

114. Information.

With reference to Bulletin No.5, Item 49, the vital necessity of collecting and circulating details of enemy ammunition is again stressed. Any information concerning enemy ammunition should, therefore, be forwarded immediately to C.I.A.

115. Amendment to Bulletin No.7.

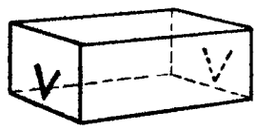
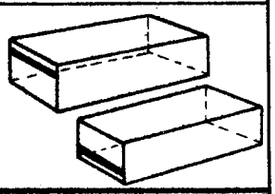
Item 67, page 5. Delete (d) and reference to A.Z.1502 fuze.

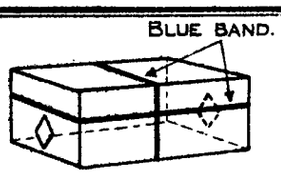
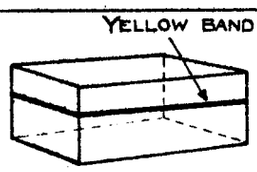
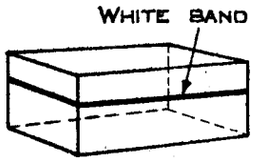
116. Amendment to Bulletin No.10.

Item 104, end of 3rd para. for "steel" read "lead"

SMALL ARMS AMMUNITIONS PACKAGES.

107.A. DISTINGUISHING MARKINGS.

METHOD OF PACKING.	Nº OF PACKAGE.	MARKING.
BANDOLIER, CHARGER, CLIP OR MAGAZINE.	H.1, H.19, H.21, H.27.	BOXES STAINED BROWN. NO BATTENS ON ENDS.
BELT.	H.26. H.29. H.30.	BOXES STAINED BLUISH - GREEN. ONE "V" SHAPED BATTEN AT THE BOTTOM OF THE BOX AT EACH END. 
CARTON	H.13.	BOXES STAINED YELLOWISH - GREEN. ONE HORIZONTAL BATTEN AT THE TOP OF THE BOX AT EACH END.
"	H. 20, H.22, H.28.	ONE HORIZONTAL BATTEN AT THE BOTTOM OF THE BOX AT EACH END 

NATURE OF AMMUNITION.	Nº OF PACKAGE	MARKING.
·45 INCH SUB M/G. AND 9 M.M. PARABELLUM REVOLVER.	H-34	BOX STAINED YELLOWISH - GREEN. DIAMOND SHAPED BATTEN AT EACH END OF BOX. LIGHT BLUE BAND PAINTED AROUND BOTH PERIMETERS OF BOX. 
·380 - INCH REVOLVER	H.-13.	BOX STAINED YELLOWISH - GREEN. A YELLOW BAND PAINTED AROUND PERIMETER OF BOX, HORIZONTALLY. 
·455 - INCH REVOLVER.	H. 13.	BOX STAINED YELLOWISH - GREEN. A WHITE BAND PAINTED AROUND PERIMETER OF BOX, HORIZONTALLY. 
REVOLVER AMMUNITION GENERALLY.	H.9. H. 25	BOX STAINED YELLOWISH - GREEN. THESE BOXES ARE BOTH SO SMALL IN COMPARISON TO OTHER S.A. BOXES THAT NO OTHER INDENTIFICATION MARK IS CONSIDERED NECESSARY.
·303 - INCH BULLETED BLANK L. MK VII	H.13.	BOX PAINTED BRIGHT YELLOW.

NOTE:-

IN ALL CASES, EXCEPT BOXES H.9 AND H.25 FOR REVOLVER AMMUNITION, THE FIGURES AND LETTERS AS APPROVED WILL, IN ADDITION, BE AFFIXED TO BOTH ENDS OF BOXES (SEE BULLETIN Nº 7. ITEM 63.). IN ADDITION, THE FIGURE "4" WILL BE USED FOR ·45" REVOLVER AND FIGURE "9" FOR 9 M.M. PARABELLUM.

FIG. 19.

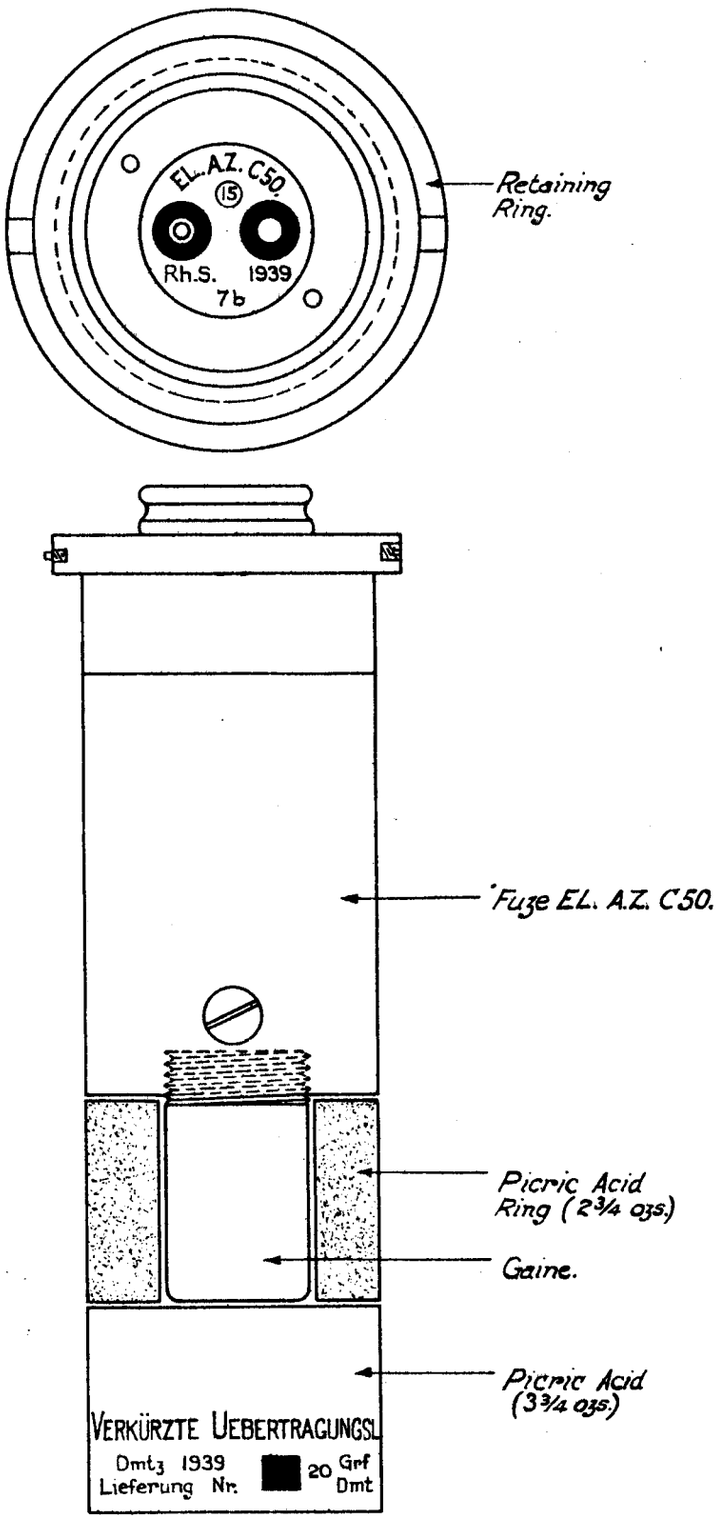
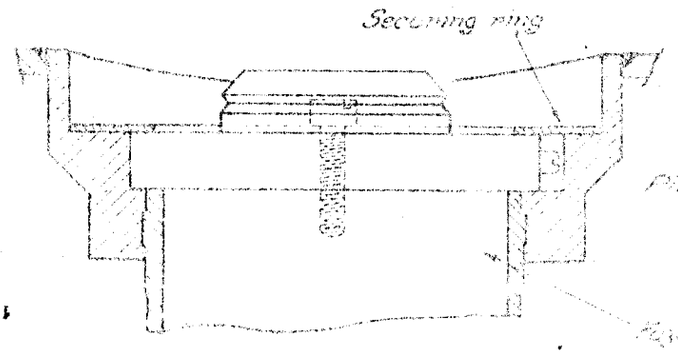
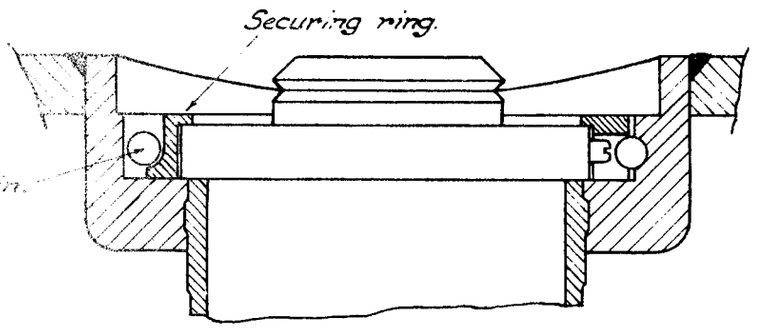

EL. A.Z. C50.
15
Rh.S. 1939
7b
Retaining Ring.
Fuze EL. A.Z. C50.
Picric Acid Ring (2¾ ozs.)
Gaine.
Picric Acid (3¾ ozs.)
VERKÜRZTE UEBERTRAGUNGSL
Dmt3 1939
Lieferung Nr.
20 Grf
Dmt

FIG. 20.





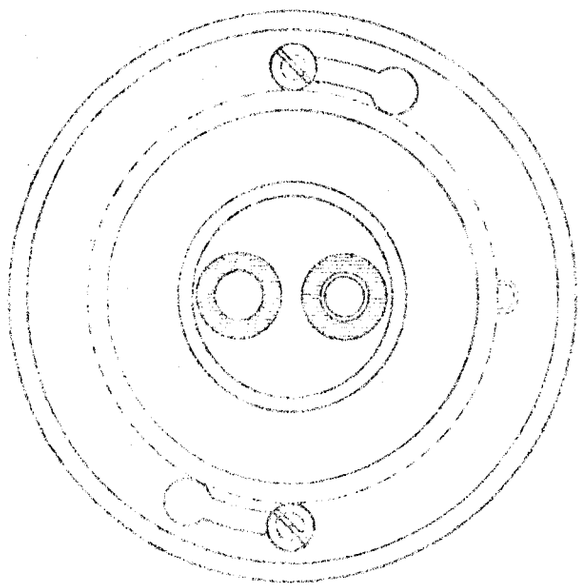
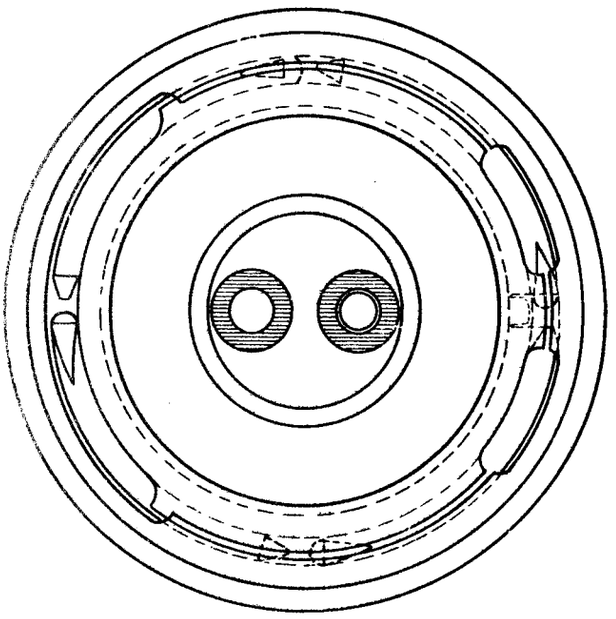
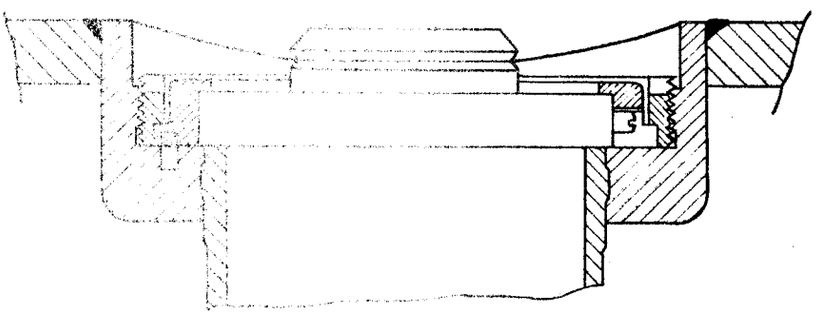
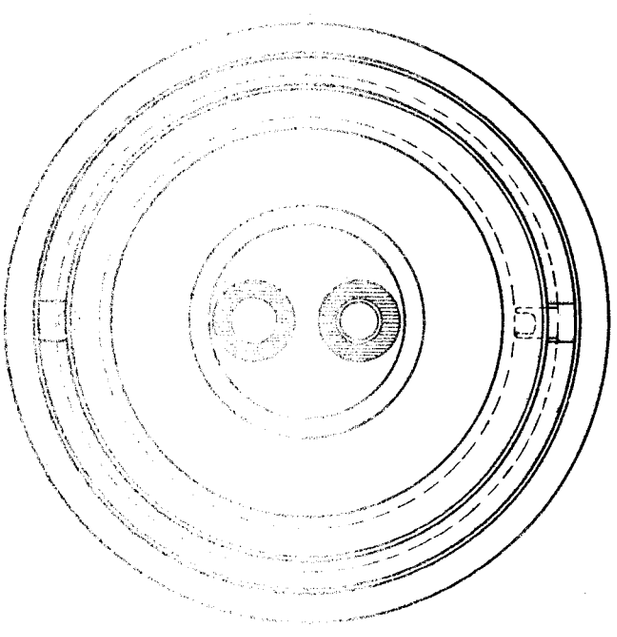


Fig. 19. Two set screws



Securing ring secured by pins.





Securing ring with slots for key.

FIG. 21.

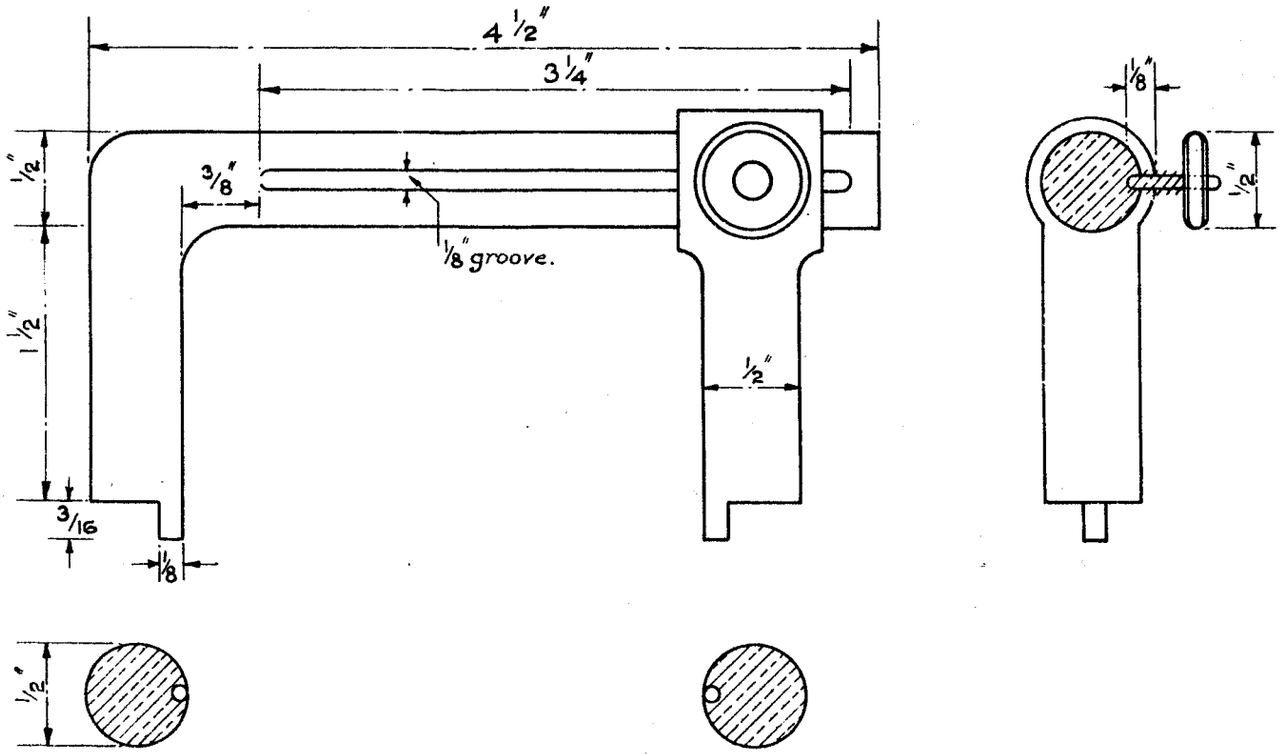

4 1/2"
3 1/4"
1/2"
3/8"
1/8" groove.
1 1/2"
1/2"
3/16
1/8
1/8"
1/2"
1/2"
1/2"

FIG. 22.

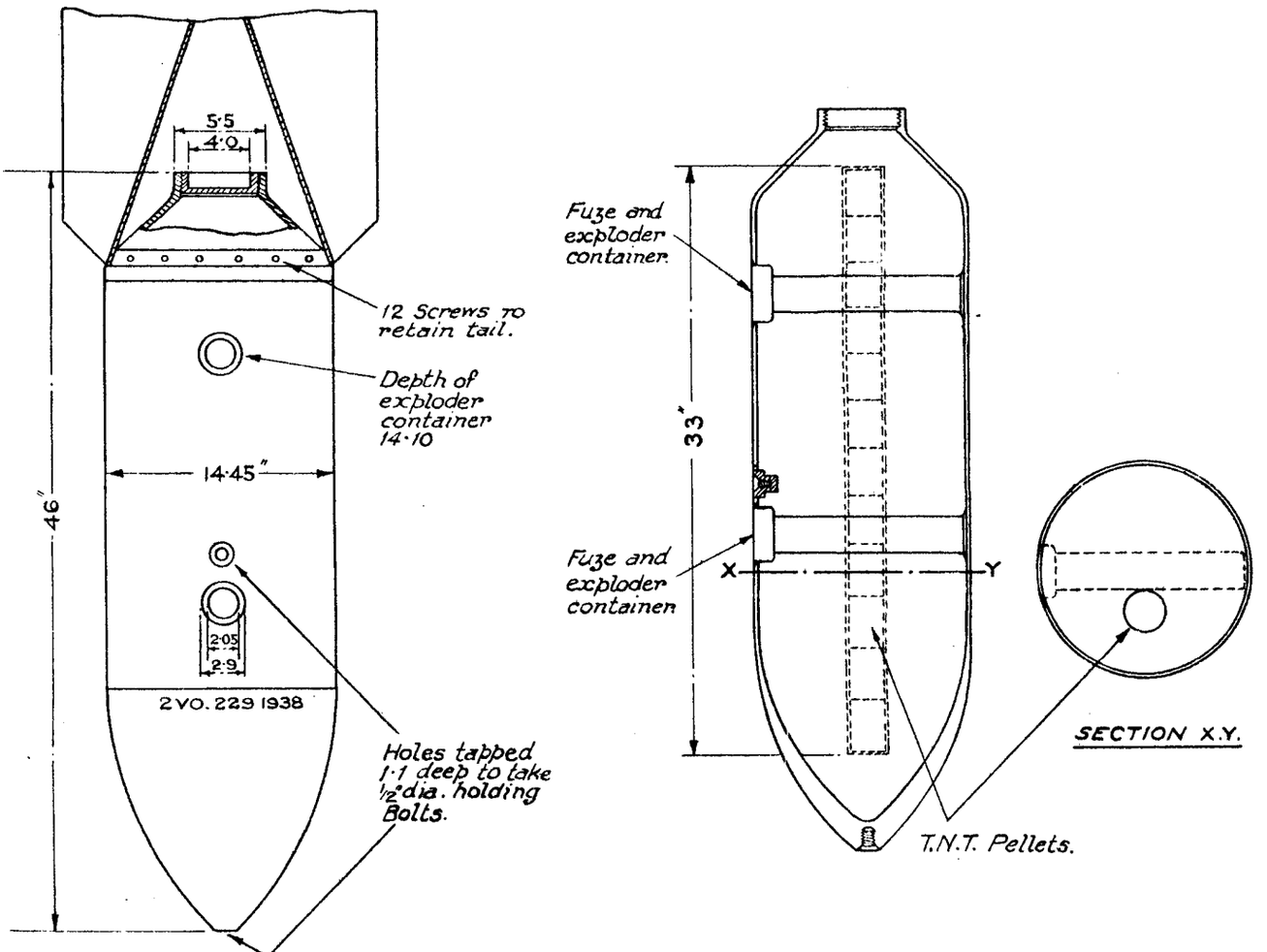
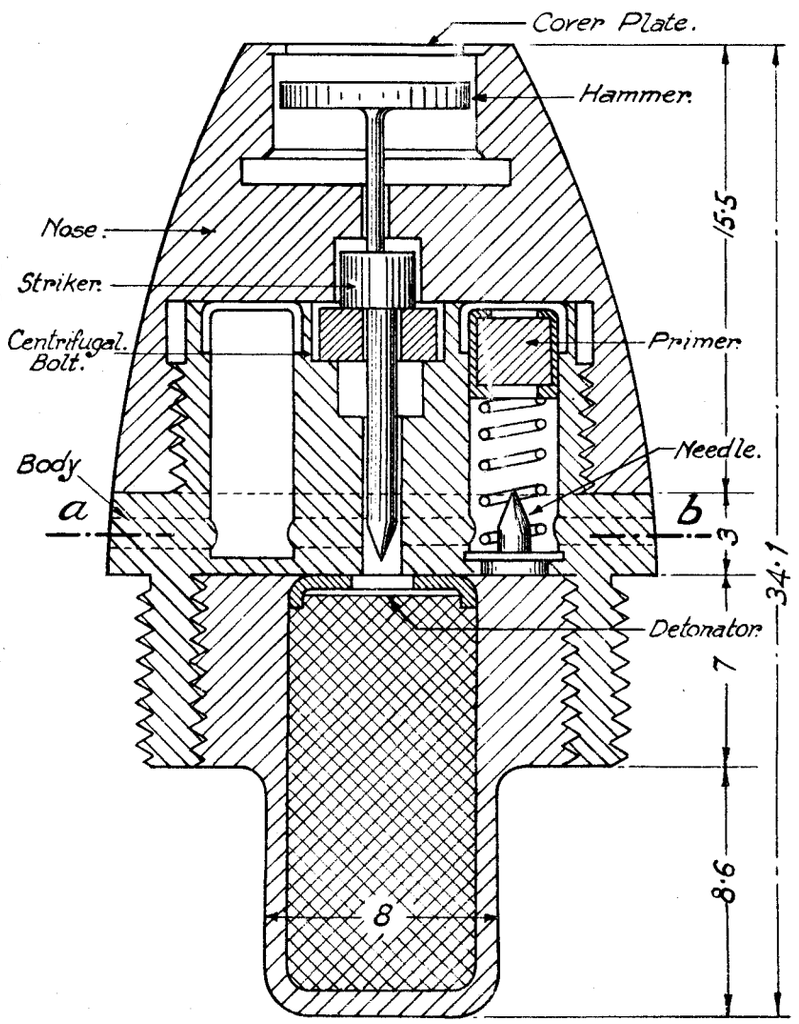

5·5
4·0
12 Screws to retain tail.
Depth of exploder container 14·10
14·45"
46"
2·05
2·9
2VO. 229 1938
Holes tapped 1·1 deep to take ½"dia. holding Bolts.
Fuze and exploder container
33"
Fuze and exploder containen
X
Y
T.N.T. Pellets.
SECTION X.Y.

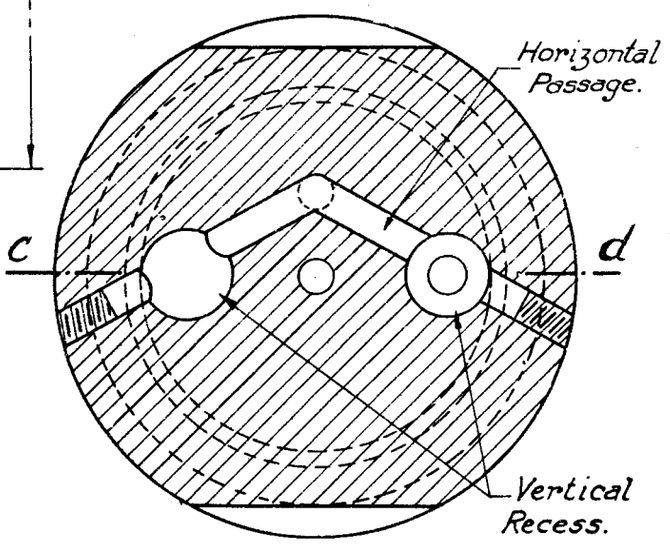
FIG. 23.

SECTION C.d.
with detonator.

Dimensions in m.m.



SECTION a.b.



SECTION
without detonator.