ITALIAN AND FRENCH EXPLOSIVE ORDNANCE

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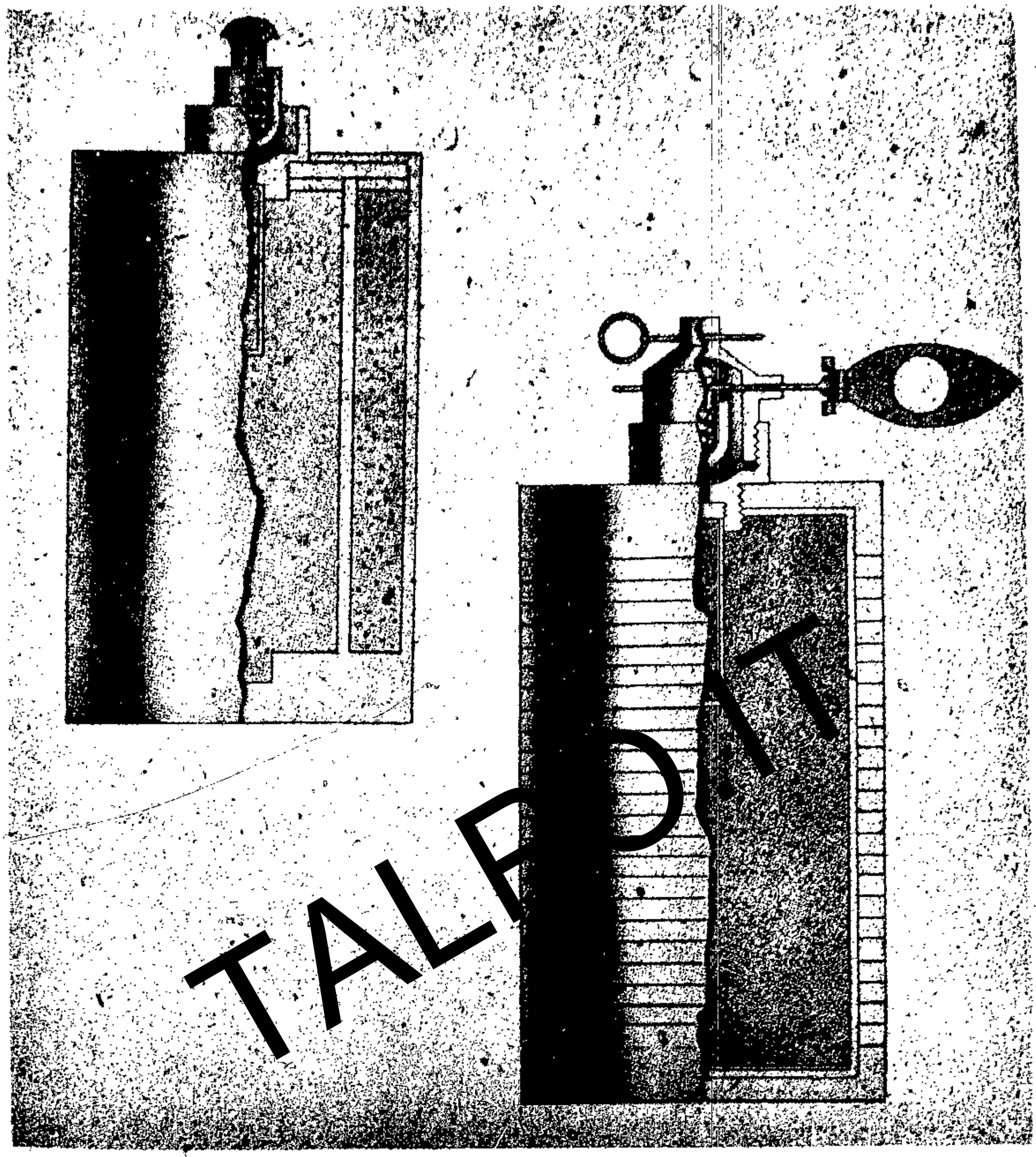

Figure 1 – 2-kg. Anti-Personnel Bombs Types F and Mtr.

Chapter 1

ITALIAN BOMBS

Italian bombs closely resemble Japanese bombs in that they are usually more than one-piece in construction, assembled by screws or rivets, or welded. The Italian bomb is normally filled through the base, which is closed by a base plate attached by screws or rivets. Normally, the tail unit fits over the base plate and is attached to the body or the base plate by screws or rivets, or, in case of the smaller bombs, by welding. The tail units vary considerably in their design, but the tail diameter is usually the same as that of the body of the bomb to which it is attached.

Generally the bombs are of sheet steel, but some are constructed of cast aluminum alloy. In most cases, the filling is cast TNT, but a large number have been found with an alternate filling of Amatol and TNT with aluminum powder. A felt pad in the nose breaks the shock of impact on the explosive filler. The bombs contain a booster, and an initiating charge in the fuze.

Normally the demolition bombs have a mild steel casing, while the armor-piercing bombs use hardened steel. The wall thickness for the 24-kg. or large bombs ranges from ¼ in. to ½ in. for light-cased and from ½ in. to 1½ in. for heavy-cased. This thickness varies for each bomb, increasing towards the nose.

Demolition bombs and chemical bombs, 100-kg. or less, usually have provision for tail fuzing only. The tail fuzes are screwed into the base of the bomb. These tail fuzes usually have very long arming spindles which extend the full length of the tail. The end of the bomb tail is shaped to accommodate the arming vanes of the fuzes. In the case of 20-kg. incendiary bombs, the tail unit is cut to allow the vanes to be situated half-way along the tail in order to insure limited terminal velocity for the vanes. Nose and tail fuzing is normally used in demolition bombs of 160-kg. or above.

Anti-personnel bombs differ from the demolition bombs in the construction of the outer casing. In one type, the filling is enclosed in a sheet container, on the outside of which a steel strip is wound spirally. In another type, the filling is contained in a sheet-steel case which is enclosed by a larger container. The space between the two containers is filled with steel fragments embedded in concrete. These anti-personnel bombs are known as Type F and Type Mtr., respectively.

Italian bombs are either painted or galvanized as a precaution against corrosion. The colorings are usually found on the nose and the body. Distinguishing colors are identified as follows:

Type of Bomb	Body	Nose
Fragmentation	blue	red
High explosive	grey	red
Anti-personnel	black or blue	red
Incendiary	reddish brown	red
Gas	bright yellow	red
Practice	grey	grey

2-kg. Anti-Personnel Bombs Types F and Mtr.

Data

	Type F	Type Mtr.
Over-all length	6.0 in.	6.0 in.
Body length	4.5 in.	4.5 in.
Max. diameter	2.75 in.	2.75 in.
Type of filling	TNT	TNT
Weight of filling	0.380 kg.	0.220 kg.
Total weight	1.72 kg.	1.87 kg.

Fuzing

Tail—Type K

Description

Type F: The bomb consists of a thin steel cylinder surrounded by a tightly coiled spring of rectangular cross section. In certain assemblies of this type, the spring is enclosed by a thin case. The object of the spring is to provide shrapnel effect. In fragmentation, the bomb usually breaks into pieces about 1 in. x 0.2 in. x 0.18 in. The bomb has no tail unit.

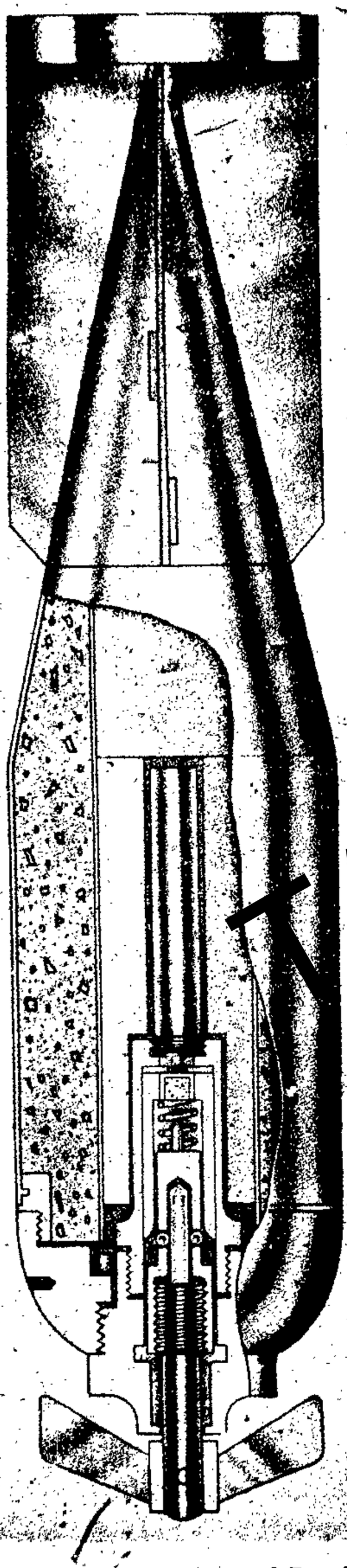

Figure 2 – 3-kg. Anti-Personnel Bomb Type Mtr.

Type Mtr: The bomb consists of two cylinders of sheet metal. The inner cylinder contains the explosives, and the outer cylinder is threaded at the top to take a screwed circular cover. Between the two cylinders are small steel pellets embedded in concrete.

Color and Markings

Over-all color—black.

Remarks

1. The bomb may be dropped singly or in containers, e. g. 100 Sp.
2. These bombs are very similar to 1-kg. incendiary bomb and 1-kg. gas bomb.
3. The bomb can also be used as a land mine by use of a pressure igniter.

3-kg. Anti-Personnel Bomb Type Mtr.

Data

Over-all length	12.1 in.
Body length	8.2 in.
Body diameter	2.7 in.
Tail length	4.5 in.
Tail width	2.7 in.
Type of filling	TNT
Weight of filling	0.17 kg.
Total weight	3 kg.

Fuzing

Nose—Type M

Description

The bomb body is thin sheet steel with a fuze adapter pressed and spot-welded into the nose. A steel central tube, 7.1 in. long and 0.078 in. thick, contains the bursting charge of block TNT, recessed to take the base of the fuze and the detonator. The space between the exploder container and the bomb's outside wall is filled with steel fragments embedded in concrete. The tail is made of thin sheet metal, with four vanes strengthened by a band 0.39 in. in width.

Color and Markings

Over-all—blue or black
Nose—red

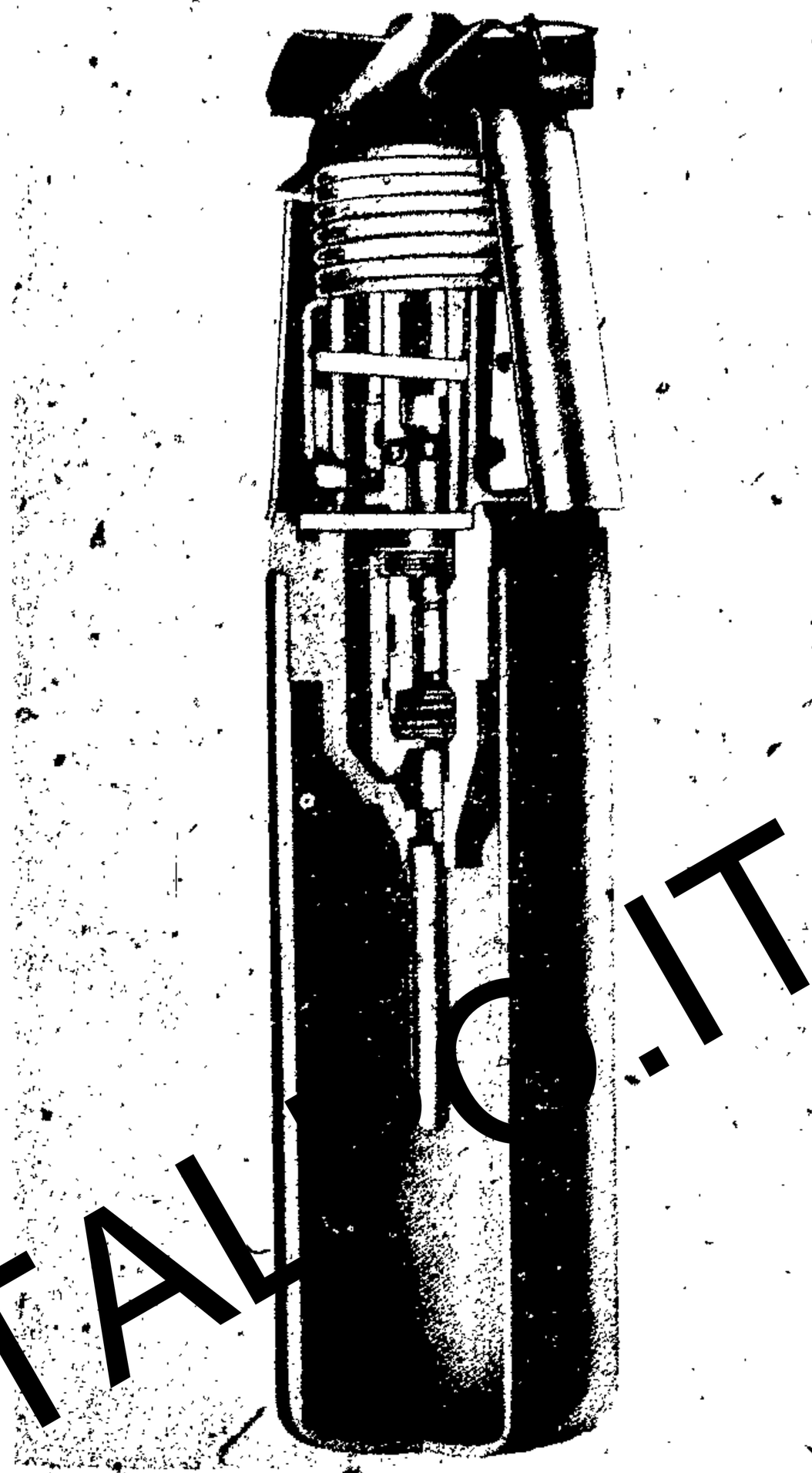

Figure 3 – 4-kg. Anti-Personnel Bomb Manzolini

4-kg. Anti-Personnel Bomb Manzolini (Thermos)

Data

Over-all length	12.3 in.
Body length	7.3 in.
Body diameter	2.75 in.
Wall thickness	0.125 in.
Type of filling	TNT
Weight of filling	0.67 kg.
Total weight	3.68 kg.

Fuzing

Manzolini Type I and II

Description

This bomb, with a steel body and aluminum top, resembles a thermos bottle. The fuzes (described in the fuze section) are very sensitive. The fragments are lethal to 100 ft., with maximum range of 300 yd.

Color and Markings

Over-all—buff or green

Remarks

1. Bombs fitted with self-destroying mechanism have an aluminum alloy fuze housing (visible where the fuze screws into the bomb).

2. Bomb does not explode on impact, but is designed to explode if moved, and is extremely sensitive to vibration.

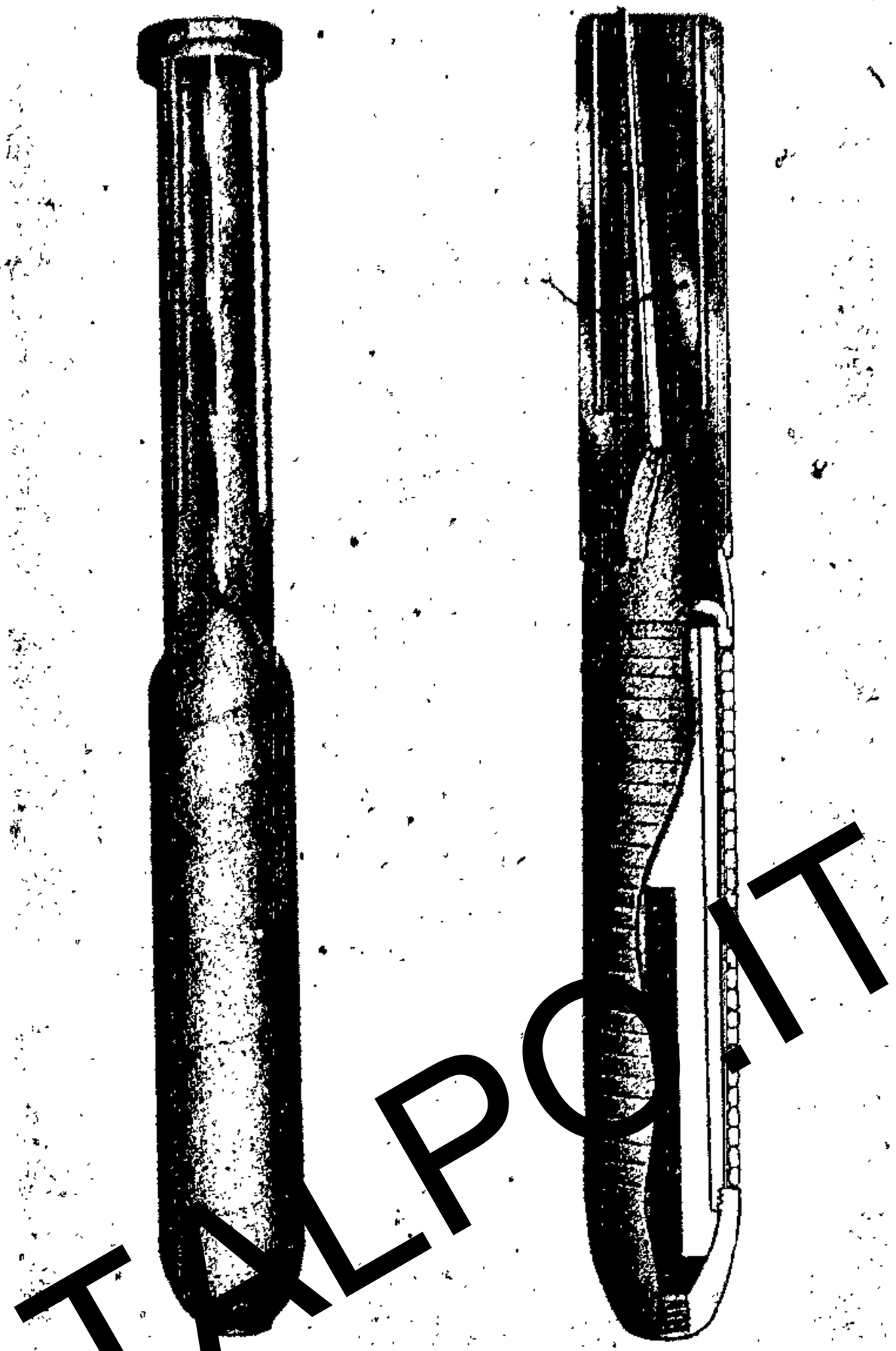

Figure 4 – 12-kg. Anti-Personnel Bombs Types F and Mtr.

12-kg. Anti-Personnel Bombs Types F and Mtr.

Data

	Type F	Type Mtr.
Over-all length	32.4 in.	32.3 in.
Body length	17.3 in.	16.0 in.
Body diameter	3.5 in.	3.5 in.
Wall thickness	0.2 in.	0.2 in.
Tail length	14.5 in.	16.5 in.
Tail width	3.5 in.	3.5 in.
Type of filling	TNT	TNT
Weight of filling	1.93 kg.	1.90 kg.
Total weight	12.20 kg.	12.88 kg.

Fuzing

Type F: Nose—Type F
Type Mtr.: Nose—Type J

Description

Type F: This bomb consists of a steel container around which are wound 25 turns of square steel wire, 0.2 in. thick. The purpose of the wire is to provide shrapnel effect in fragmentation. The tail assembly consists of four stamped sheet-metal vanes which are spot-welded to the base of the bomb.

Type Mtr.: This bomb is very similar to the Type F in appearance, but differs in construction of the body. The body is a double-walled steel cylinder containing steel shrapnel embedded in concrete. In manufacturing the bomb, the concrete-shrapnel filling was poured into the base of the bomb and then the tail unit was screwed into the outer wall of the bomb.

Color and Markings

Type F: Over-all—sky blue; nose—red
Type Mtr.: Over-all—blue or black; nose—red

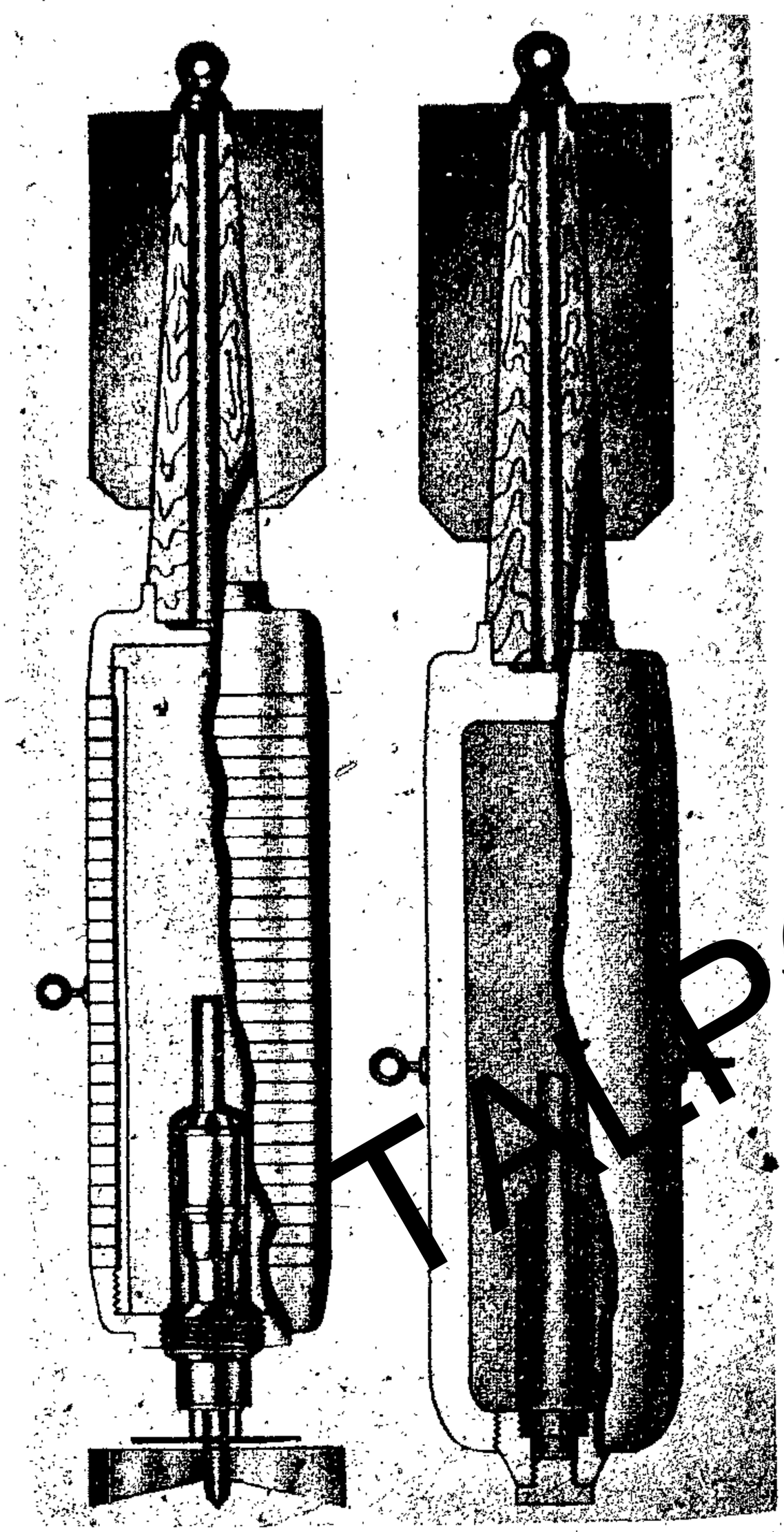

Figure 5 – 14-kg. Fragmentation Bombs Types I and II

14-kg. Fragmentation Bombs Types I and II

Data

	Type I	Type II
Over-all length	22.1 in.	22.1 in.
Body length	13.5 in.	13.5 in.
Body diameter	4.2 in.	4.2 in.
Wall thickness	0.2 in.	0.7 in.
Tail length	6.4 in.	6.4 in.
Tail width	4.2 in.	4.2 in.
Type of filling	TNT	Amatol
Weight of filling	2 kg.	2 kg.
Total weight	14 kg.	14 kg.

Fuzing

Nose—Type I

Description

Type I: The body consists of a tubular steel cylinder on which the cast-steel nose and base sections are threaded. A square steel wire, 3/8 in. on the side, is helically wound around the body. The nose piece is threaded to receive the fuze. The base has an external recess and extension rod for the tail assembly. The tail section consists of two sheet steel plates bent to an angle of 90 degrees and held to the extension rod. Four pieces of wood, shaped to form a truncated cone, serve as spacers for the fins. The assembly is held by a steel pressure cap which threads into the extension rod.

Type II: The body is one-piece machined steel with the nose threaded to receive the fuze, and the base recessed with an extension rod for the tail assembly. In all other respects this type is similar to Type I.

Color and Markings

Type I: Over-all—yellow; stenciled in black

P30A

IM–4–39

TNT

K

Type II: Over-all—Dark olive green (painted over yellow). Red paint marks diametrically opposite on shoulders of nose and base.

Remarks

Both type resemble the U. S. 30-lb. Fragmentation Bomb Mk 5 in size and appearance.

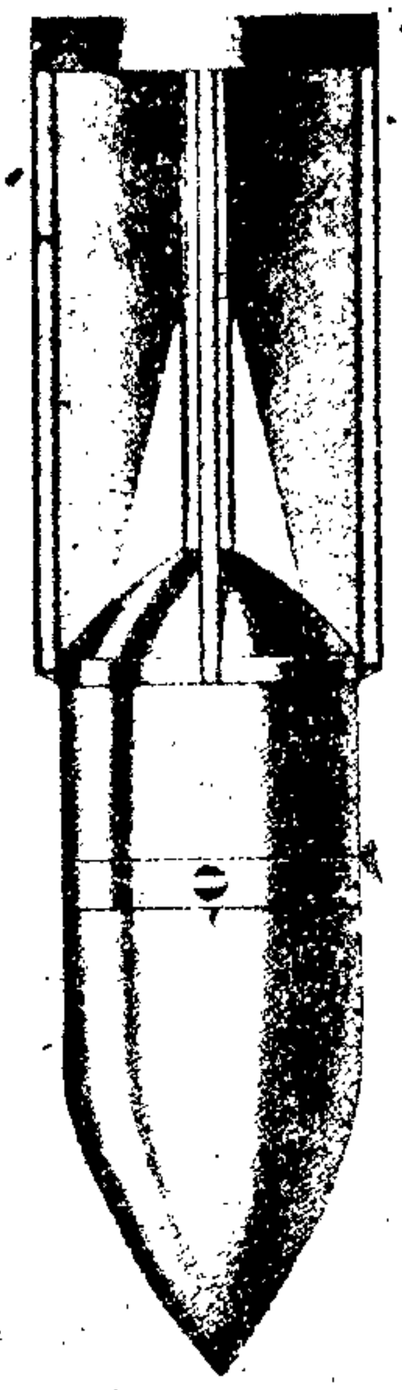

Figure 6 – 24-kg. G.P.-H.E. Bomb

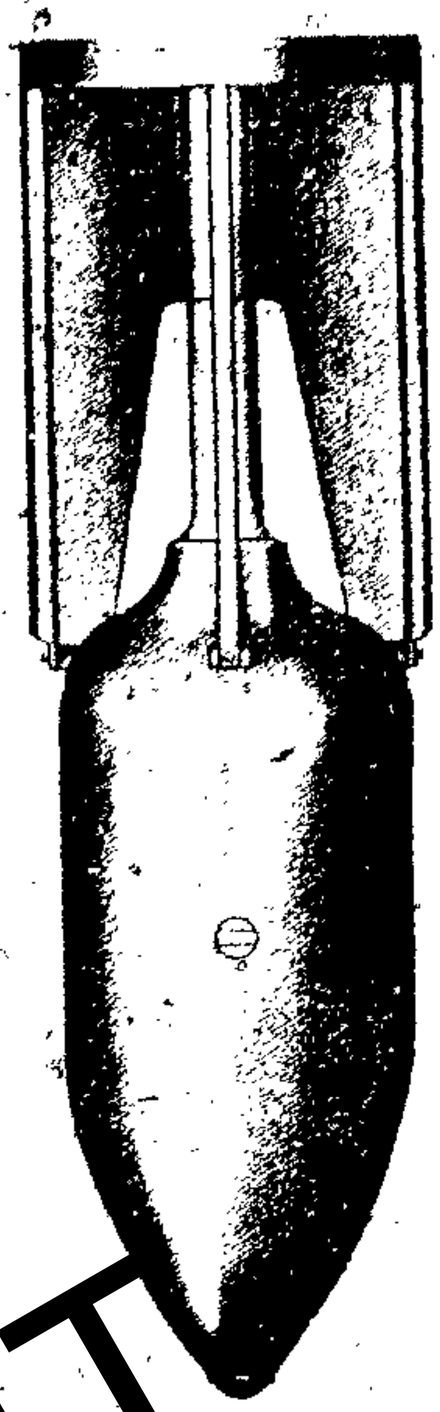

Figure 7 – 40-kg. G.P.-H.E. Bomb

24-kg. G.P.-H.E. Bomb

Data

Over-all length	30.5 in.
Body length	19.9 in.
Body diameter	6.4 in.
Tail length	14.8 in.
Tail width	6.4 in.
Type of filling	TNT
Weight of filling	12 kg.
Total weight	24 kg.

Fuzing

Tail only—Type N–1

Description

The bomb is light cased, with a steel body and nose in one piece. A sheet-metal tail, including a sheet-metal strengthening band at the end, is attached to bomb by a metal band which is clamped around the body. The suspension band is bolted around the body.

Color and Markings

Over-all—grey; nose—red

Remarks

The bomb was declared obsolete by the Italians before the end of the war.

40-kg. G.P.-H.E. Bomb

Data

Over-all length	32.3 in.
Body length	19.7 in.
Body diameter	9.0 in.
Tail length	16.1 in.
Tail width	9.0 in.
Type of filling	TNT
Weight of filling	Unknown
Total weight	40 kg.

Fuzing

Tail only—Type N–3

Description

The bomb has a steel body and nose in one piece. The tail is of sheet-metal construction, with a strengthening band at the end. The tail unit is bolted to four square lugs on the body.

Color and Markings

Overall—grey; nose—red

Remarks

This bomb is very similar to 40-kg. gas bomb except for filling.

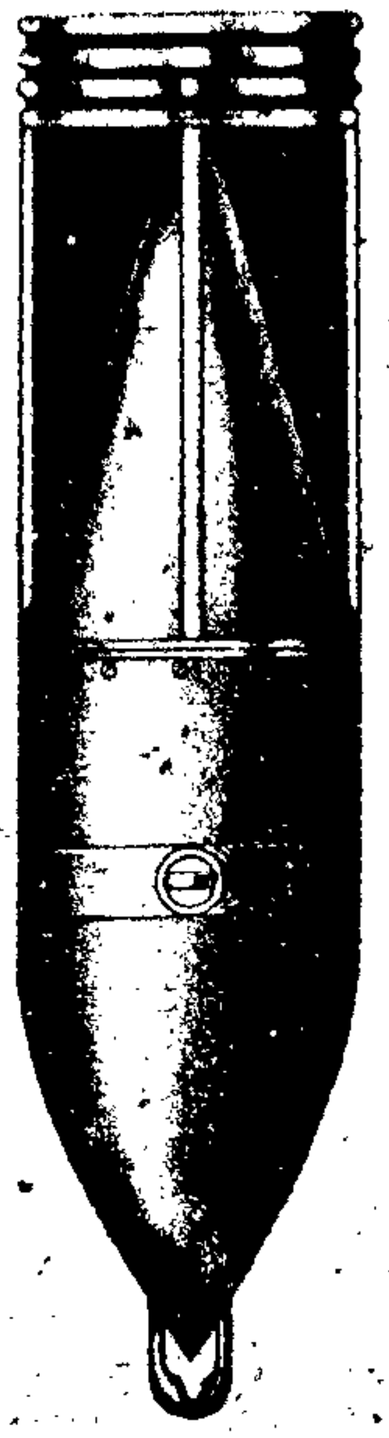

Figure 8 – 50-kg. G.P.-H.E. Bomb

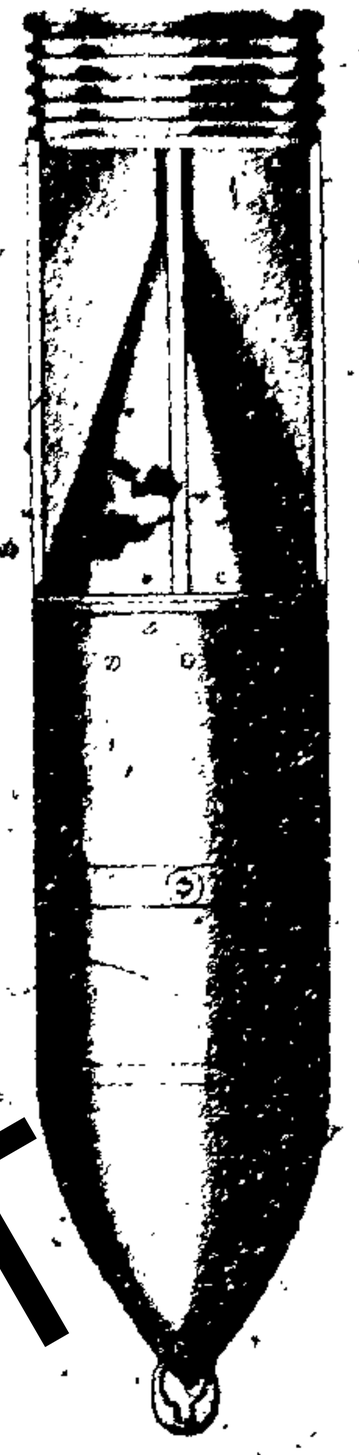

Figure 9 – 100-kg. G.P.-H.E. Bomb

50-kg. G.P.-H.E. Bomb

Data

Over-all length	40.5 in.
Body length	21.7 in.
Body diameter	9.9 in.
Wall thickness	0.25 in.
Tail length	18.4 in.
Tail width	9.9 in.
Type of filling	Amatol
Weight of filling	29.20 kg.
Total weight	59.31 kg.

Fuzing

Tail only—Type C or Y

Description

The bomb body consists of a base section and a nose section, both steel. Screwed into the nose is a pointed steel block, pierced to take a suspension link. The tail is secured to the base plate, which is attached to the casing with one row of screws. The tail assembly consists of four vanes, tail cone, and corrugated strengthening ring, all sheet metal. The bomb can also be suspended horizontally.

Color and Markings

Over-all—dull blue

100-kg. G.P.-H.E. Bomb

Data

Over-all length		51.3 in.
Body length		32.5 in.
Body diameter		10.7 in.
Tail length		22.0 in.
Tail width		10.7 in.
Type of filling	TNT	Amatol
Weight of filling	50.6 kg.	49.5 kg.
Total weight	100 kg. (approx.)	

Fuzing

Tail only—Type C–1 or Y–1

Description

The bomb body is a drawn-steel tube to which is riveted a cast-steel nose, pierced to take a suspension link. The base plate is attached to casing with two rows of screws. The tail assembly is sheet metal, consisting of four vanes, cone, and corrugated reinforcing ring, all attached to the bomb base. The bomb can be suspended vertically or horizontally.

Color and Markings

TNT filled: Over-all—grey; nose—red

Amatol filled: Over-all—dull blue; nose—red

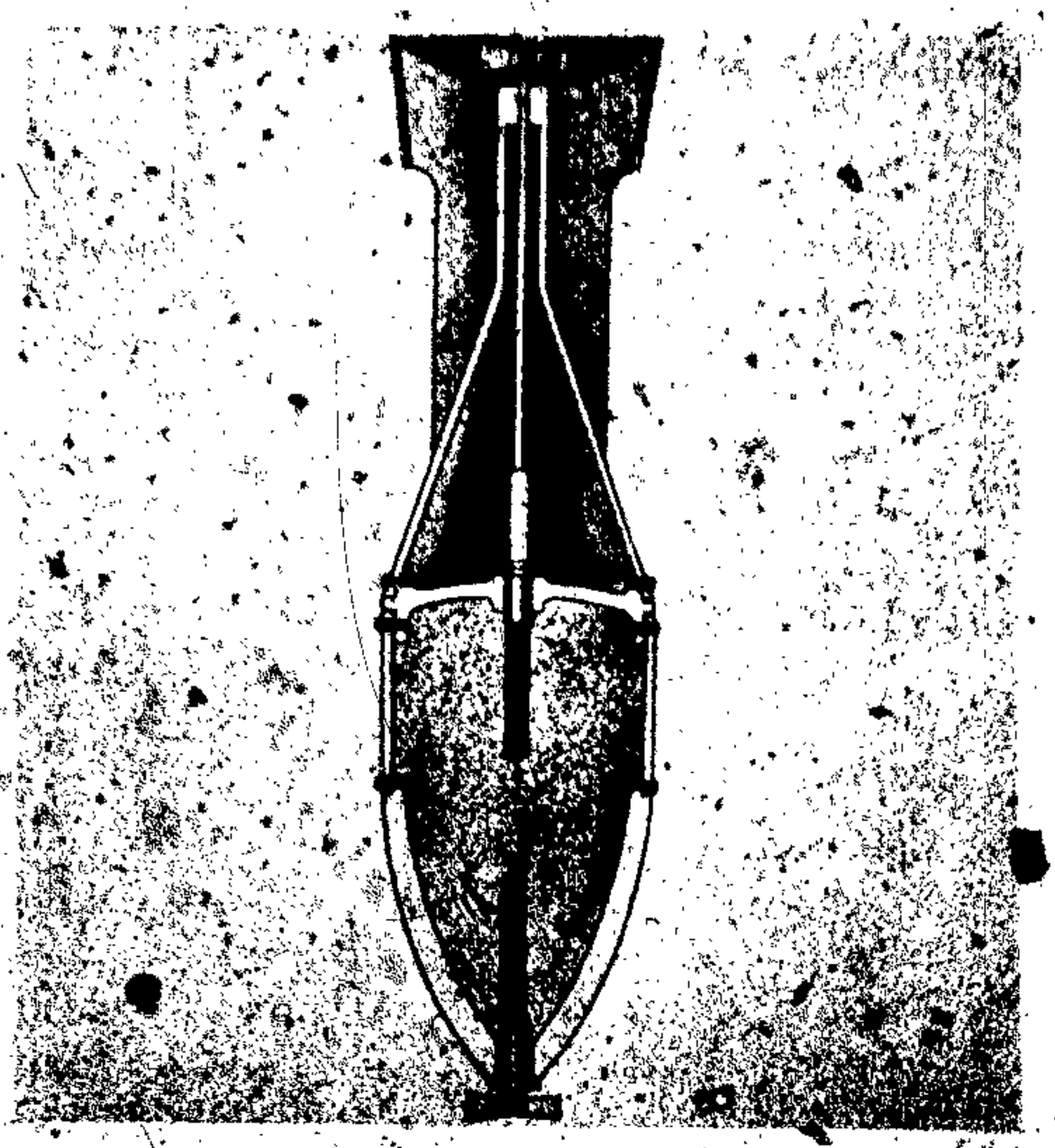

Figure 10 — 250-kg. G.P.-H.E. Bomb

250-kg. G.P.-H.E. Bomb

Data

Over-all length	73.8 in.
Body length	35.4 in.
Body diameter	17.6 in.
Tail length	39.4 in.
Tail width	17.6 in.
Type of filling	TNT
Weight of filling	125.7 kg.
Total weight	259.1 kg.

Fuzing

Nose—Type A
Tail—Type O

Description

The bomb casing is a drawn-steel tube with a cast-steel nose riveted to it. The base plate has a double flange and is attached to the casing with a double row of screws. A cast-alloy tail is attached to the upper flange of the base plate with screws. A lug is secured to the body near the center of gravity for horizontal suspension.

Color and Markings

Over-all—grey; nose—red

Figure 11 — 500-kg. and 800-kg. G.P.-H.E. Bombs

500-kg. and 800-kg. G.P.-H.E. Bombs

Data

	500 kg.	800 kg.
Over-all length	96.6 in.	127.8 in.
Body length	52.0 in.	77.1 in.
Body diameter	18.0 in.	18 in.
Tail length	35.7 in.	52.8 in.
Tail width	18.0 in.	18 in.
Type of filling	TNT	
Weight of filling	216 kg.	357 kg.
Total weight	508 kg.	821.6 kg.

Fuzing

Nose—Type A
Tail—Type O

Description

The bombs have a steel body and nose cast in one piece, with double-flanged base plate attached by double rows of screws. The cast-alloy tail is attached to the upper flange. The 500-kg. and 800-kg. vary only in length and weight.

Color and Markings

Over-all—grey; nose—red

Remarks

A 630-kg. time bomb has been made from the 800-kg. by reducing the thickness of walls, so as to use a greater explosive charge.