

JAPANESE

HAND,

RIFLE,

&

MORTAR

GRENADES

C O N F I D E N T I A L

INTRODUCTION

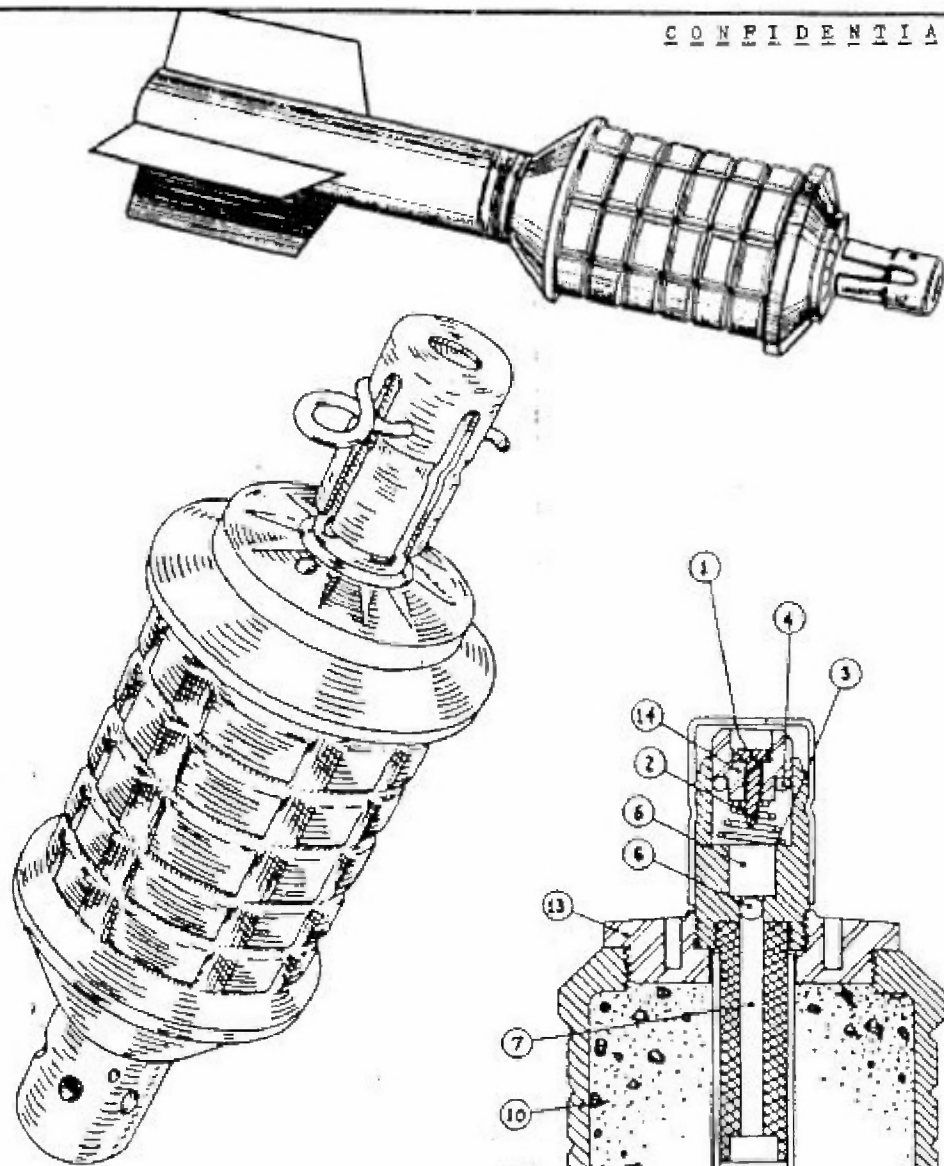
Japanese hand grenades are simple and effective. The common fuse action is of the time delay type. The grenadier must impinge the striker upon the primer to initiate the pyrotechnic delay before throwing the grenade. The anti-personnel grenades depend upon fragmentation for their effect, hence they are called "defensive" grenades. The Japanese have made much use of the hand grenade in booby traps.

Only one of the rifle grenades incorporates an impact fuse. The others are time delay like the hand grenades. The Japanese use both the spigot and the cup launcher attachment for the rifle.

The grenade discharger is a much used Japanese weapon. By its means hand grenades and rifled mortar shells are propelled with distance and accuracy. The mortar shells are included in this publication as part of the general grenade warfare equipment.

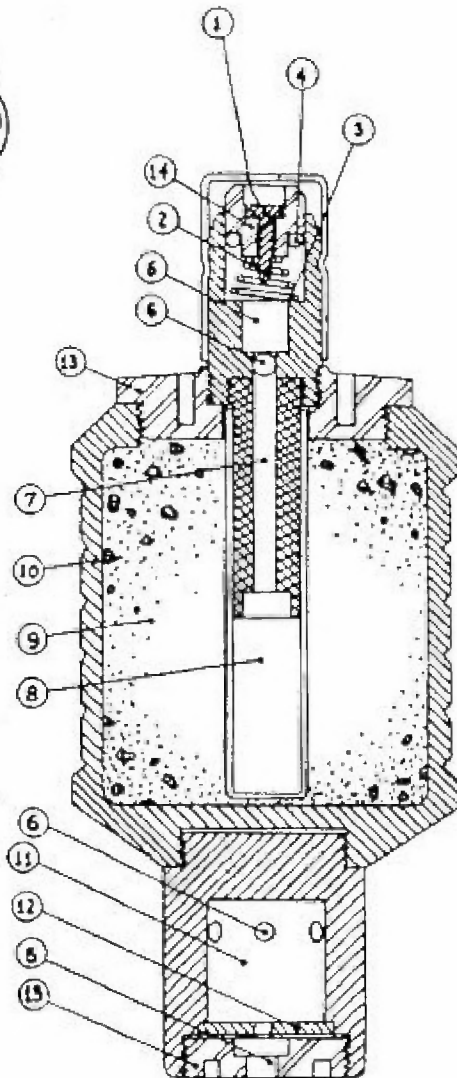
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Legend

- | | |
|-----------------|-----------------------|
| 1. Firing pin | 7. Delay pellet |
| 2. Firing pin | 8. Detonator |
| 3. Creep spring | 9. Bursting charge |
| 4. Safety fork | 10. Grenade body |
| 5. Primer | 11. Propelling charge |
| 6. Gas vents | 12. Steel washer |
| | 13. Filling Plug |
| | 14. Inertia weight |



JAPANESE GRENADE
USED IN 2 INCH GRENADE THROWER
TYPE 91

C O N F I D E N T I A L

Data

Overall length 5 inches.
 Maximum diameter 2 inches.
 Color Body, black; Fuze cover, red; and fuze is brass.
 Total weight 19.8 oz.
 Filling Powdered T.N.T.
 Weight of filling 65 grams.
 Delay 6 seconds.

Description

The cast iron body is cylindrical and has 50 serrated segments. A filling plug screws into the upper end of the body, and a brass fuze screws through this plug. The base of the grenade is threaded, but not entirely through to the charge. Into these threads fits the propellant container.

The fuze consists of a brass inertia pellet with a steel firing pin separated from the primer by a creep spring. The inertia weight is held in the fuze by a light brass cap which is crimped into a conelure in the fuze body so as to prevent the firing pin from reaching the primer. The firing pin is threaded into the inertia weight, and, before arming, it is not screwed in far enough and its point does not protrude below the base of the inertia weight. Therefore, before using the grenade, it is necessary to screw the firing pin into the inertia weight so that it will protrude. In addition, a double brass safety pin fits through holes in the brass cap and fuze body into holes in the inertia weight thus preventing the firing pin from reaching the percussion cap.

The delay pellet screws into the base of the fuze and contains a small quantity of granular black powder in the top and a highly pressed pellet of black powder in the lower section. A hole drilled in the side of the fuze contains a fusible plug which melts when the black powder burns, allowing the escape of the gases formed on combustion of the delay train. The escape of these gases will enable the thrower to know if the delay pellet has ignited. The tetryl detonator is contained in the lower part of a brass tube extending from the base of the fuze to the bottom of the bursting charge.

The steel propellant container is 1 1/4" long, 1.02" in diameter, and has six perforations in its walls. It is screwed into the base of the body. A perforated plug screws into the base of this container and in a cavity in this is a percussion cap. Two flash holes lead through the percussion cap holder to a small quantity of black powder. A perforated steel disc covers the plug and inside the propellant container proper is a copper cup containing flakes of nitrocellulose propellant powder.

When this grenade is used as a rifle grenade, a finned tail stabilizer is screwed into the base of the grenade instead of the propellant container. This stabilizer carries within it a Ballistite filled wooden bullet cartridge of 6.5 mm caliber.

Operation

The firing pin must first be threaded down into the inertia weight. The safety pin must then be withdrawn. If the grenade is to be thrown by hand, it is necessary to strike the inertia weight on some hard object thus driving the firing pin into the primer to ignite the delay train.

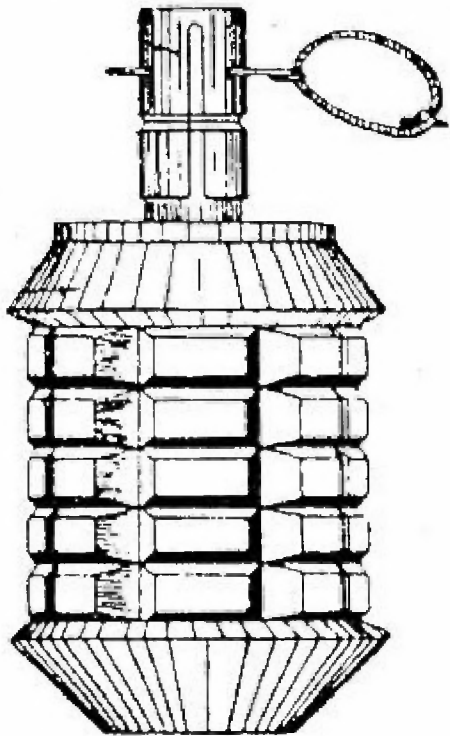
If the grenade is to be fired from the grenade discharger, or knee mortar as it is sometimes called, the grenade with propellant container is dropped base first into the discharger. When the trigger mechanism of the discharger is operated, its firing pin strikes the percussion cap igniting the propelling charge which propels the grenade. Force of setback causes the firing pin in the grenade fuze to compress the creep spring and hit the primer to ignite the delay train.

To fire the grenade from a rifle, the cartridge is removed from the stabilizer and loaded into the rifle. The stabilizer is placed over the launcher and the rifle is fired. The shock of discharge forces the striker into the primer igniting the delay.

JAPANESE

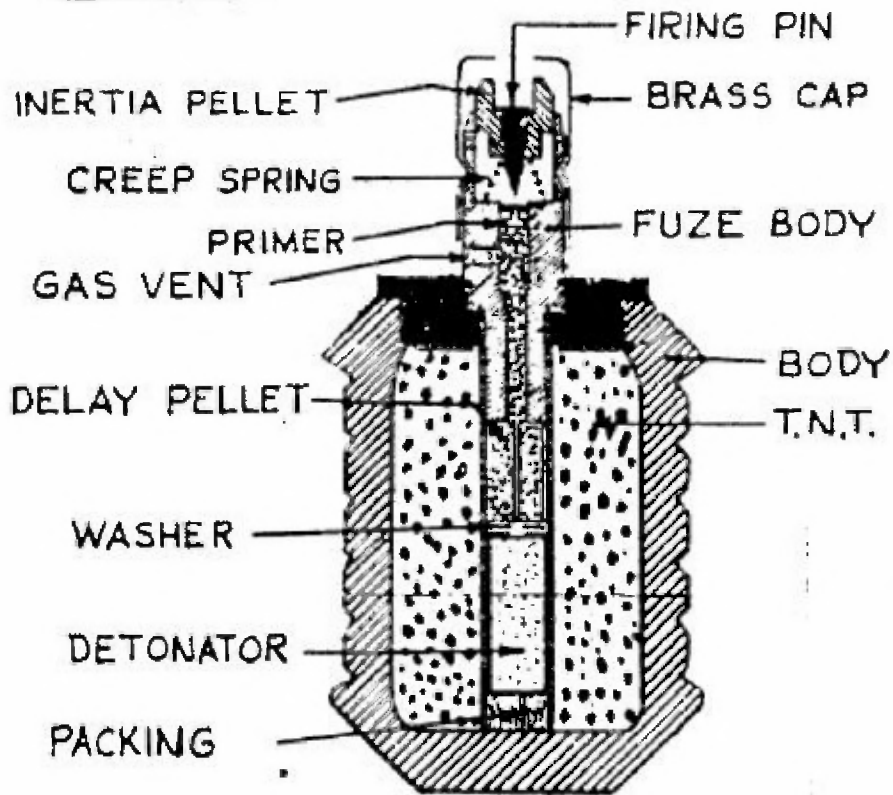
TYPE 91 GRENADE

HAND, MORTAR, OR RIFLE



THESE CHARACTERS INSCRIBED
ON TUBE-

“CH◎★☆ 3★+00”
(CH◎ TOKYO ☆ MARCH 1941)



JAPANESE TYPE 97 HAND GRENADE

C O N F I D E N T I A L

Data

Overall length 4 inches.
Maximum diameter 2 inches.
Color Body black; fuze
cover red; fuze
brass.
Total weight 1 lb. 3 oz.
Filling Powdered T.N.T.
Delay 4 - 5 seconds.

Description

The body is cylindrical with serrations to give uniform fragmentation. This grenade is identical to the Type 91 grenade except that the base of this grenade is solid and therefore cannot take a propelling charge. It can only be used as a hand grenade.

The fuze consists of a brass inertia pellet with a steel firing pin separated from the primer by a creep spring. The inertia weight is held into the fuze by a light brass cap which is crimped into a cannellure in the fuze body so as to prevent the firing pin from reaching the primer. The firing pin is threaded into the inertia weight, and, before arming, it is not screwed in far enough and its point does not protrude below the base of the inertia weight. Therefore, before using the grenade, it is necessary to screw the firing pin into the inertia weight so that it will protrude. In addition, a double brass safety pin fits through holes in the brass cap and fuze body into holes in the inertia weight thus preventing the firing pin from reaching the percussion cap.

The delay pellet screws into the base of the fuze and contains a small quantity of granular black powder in the top and a highly pressed pellet of black powder in the lower section. A hole drilled in the side of the fuze contains a fusible plug which melts when the black powder burns, allowing the escape of the gases formed on combustion of the delay train. The escape of these gases will enable the thrower to know if the delay pellet has ignited. The tetryl detonator is contained in the lower part of a brass tube.

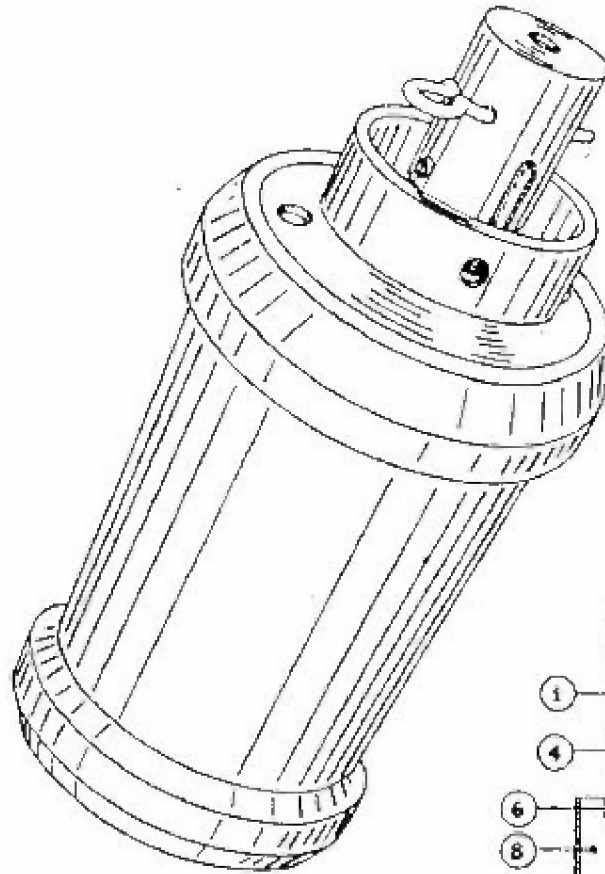
Operation

The firing pin must first be threaded down into the inertia weight. The safety pin must then be withdrawn. As the grenade is to be thrown by hand, it is necessary to strike the inertia weight on some hard object thus driving the firing pin into the primer to ignite the delay train.

JAPANESE

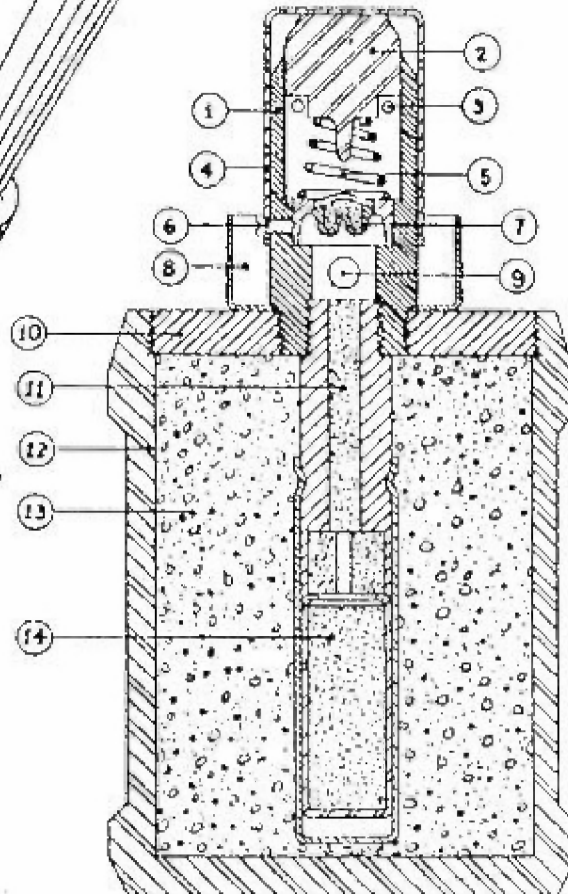
TYPE 97

HAND GRENADE



Legend:

1. Fuze body
2. Striker
3. Safety fork
4. Fuze cover
5. Striker spring
6. Fuze cover retainer screw
7. Primer cap
8. Flash guard
9. Air vent
10. Filling plug
11. Delay train
12. Grenade body
13. Explosive filler
14. Detonator



O O TYPE
JAPANESE HAND GRENADE

Data

Overall length 3-1/2 inches.
Maximum diameter 1-5/8 inches.
Color Body black with white label pasted around it. The top of the grenade is painted red, fuze cover red & the fuze is brass.
Total weight 0.8 lbs.
Filling Cast Picric Acid
Delay 4 - 5 seconds.

TYPE OO
HAND GRENADE

Description

The cast steel body has smooth surfaces. There is a shoulder projecting 1/16" from each end of the body. The inside of the body is finished with lacquer to keep the filler from reacting with the steel case. The filler is also wrapped in heavy paper.

A light metal flash deflector is fitted in the top of the grenade. This deflector is 3/8" wide and 7/8" in diameter. Two 1/8" holes are punched in the outer periphery and match the spanner holes in the fuze body. This positions the gas vents in the fuze 90° from the holes in the flash deflector. The flash deflector reduces the possibility of the flash from the cap burning the hand of the thrower and the possibility of the flash being seen by the enemy at night.

The fuze is similar to that used in the Type 91 and 97 grenades with a few improvements. On the old type the striker may turn or spring clear of the grenade when the safety wire is pulled. In this fuze, a screw in the fuze body projects through a slot in the striker cover and keeps the cover in place. The slot allows the cover to move down when the striker is struck on a hard object. Also the striker and inertia weight are machined together and the striker protrudes so that it does not have to be threaded down to arm the grenade.

The inertia weight is held in the fuze by the light brass cap which is crimped into a cannellure in the fuze body. A double brass safety pin fits through holes in the brass cap and fuze body into holes in the inertia weight thus preventing the firing pin from reaching the percussion cap.

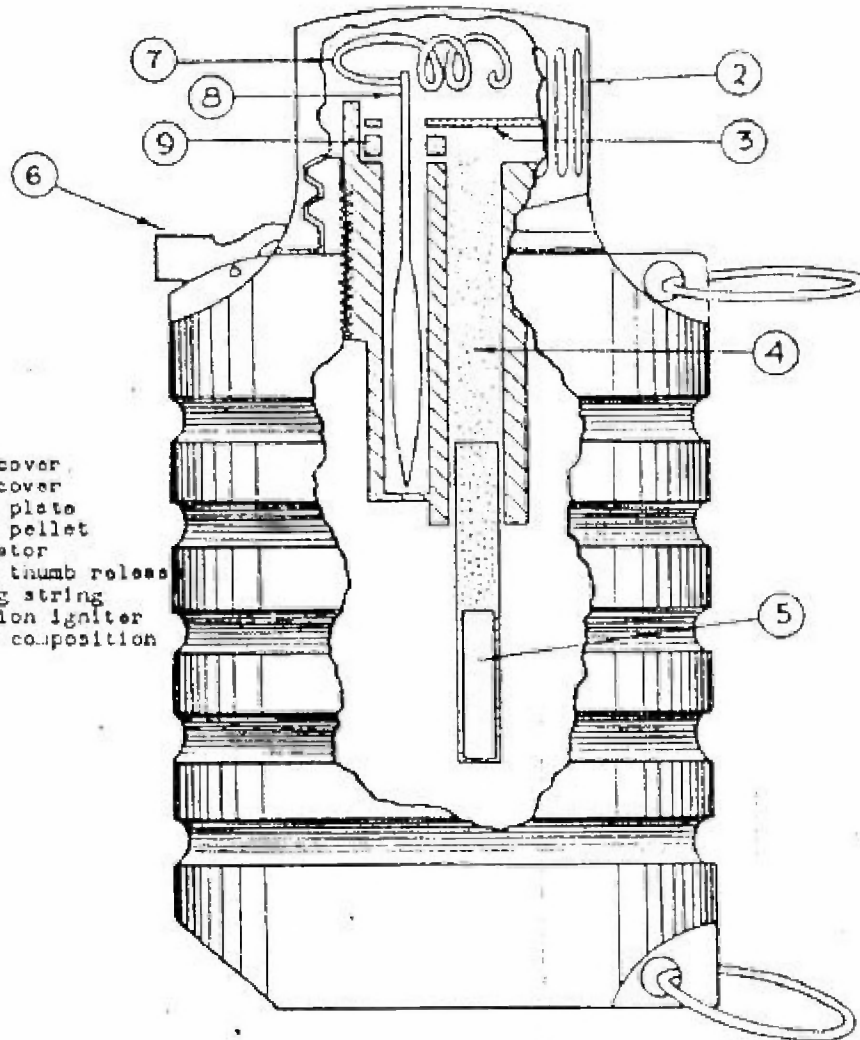
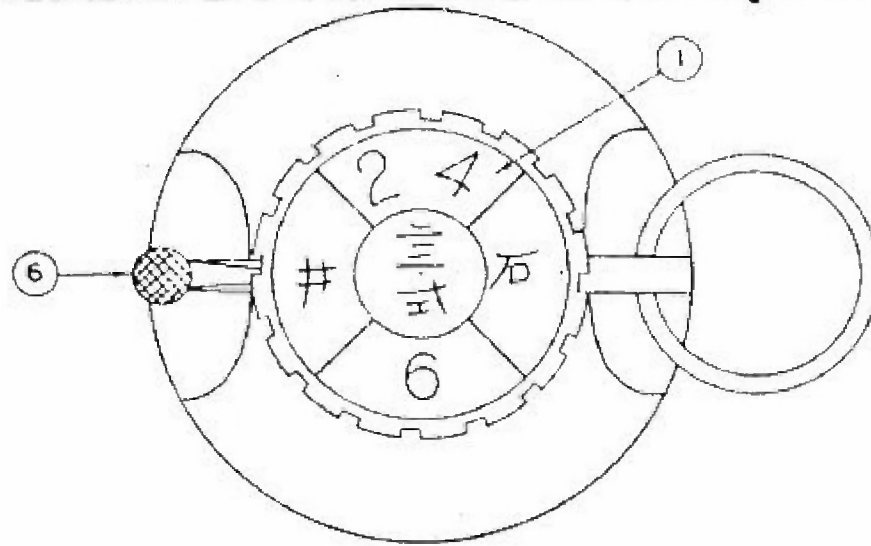
The delay pellet screws into the base of the fuze and contains a small quantity of granular black powder in the top and a highly pressed pellet of black powder in the lower section. A hole drilled in the side of the fuze contains a fusible plug which melts when the black powder burns, allowing the escape of the gases formed in combustion of the delay train. The escape of these gases will enable the thrower to know if the delay pellet has ignited.

The tetryl detonator is contained in the lower part of a brass tube extending from the base of the fuze to the bottom of the bursting charge.

Operation

The safety pin is withdrawn and the head of the fuze is struck on some hard object. This forces the striker down into the primer igniting the delay.

JAPANESE PULL TYPE HAND GRENADE



Legend:

1. Lead cover
2. Lead cover
3. Brass plate
4. Delay pellet
5. Detonator
6. Cover thumb release
7. Firing string
8. Friction igniter
9. Match composition

C O N F I D E N T I A L

Data

Overall length 3-3/4 inches.
Maximum diameter 2 inches.
Color Black.
Total weight 1 lb.
Filling Granular T.N.T.
Weight of filling 39.5 grams.
Delay 5-1/2 seconds.

JAPANESE
PULL TYPE
HAND GRENADE

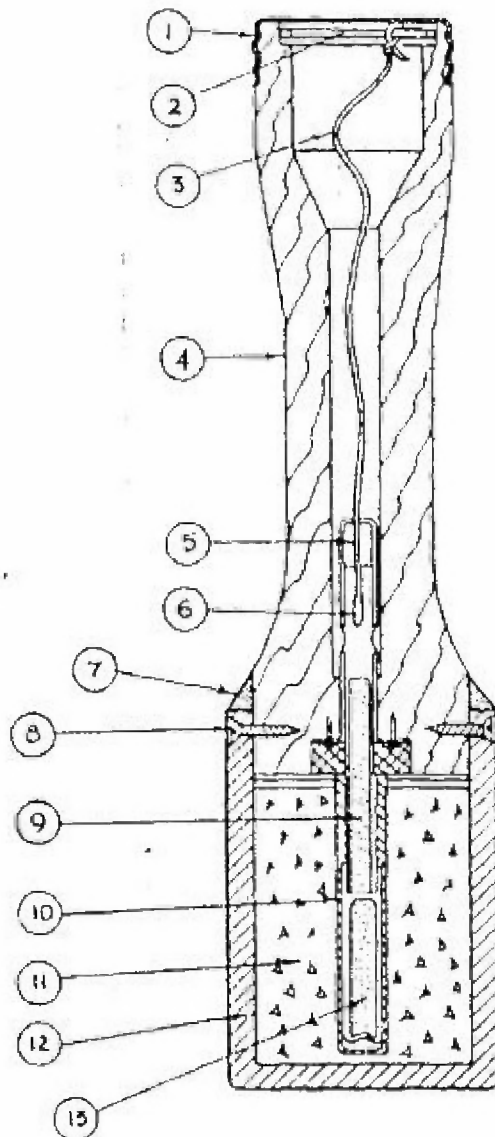
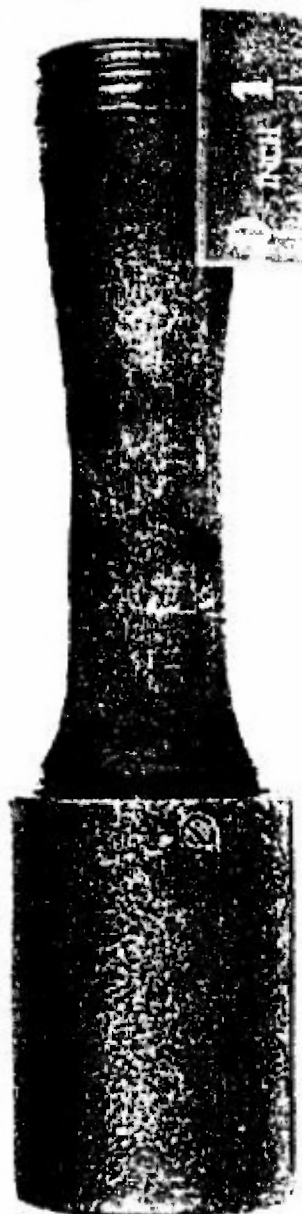
Description

The body, unlike the Type 91 or 97, has no longitudinal serrations, but does have five transverse depressions. On one side, fitted top and bottom, are two rings which could be used for carrying or for anchoring. The lead cover is screwed on to the top of the grenade and is grooved to provide a grip for easy removal. The thumb cover release holds the cover on and must be depressed before the cover can be removed. When this is depressed, the cover can be unscrewed in one and one-half turns, thus exposing the firing string which is attached to a friction igniter.

Operation

The thumb cover release must be depressed, and then the cover must be removed. When the firing string is pulled, it draws a sanded string through a match composition. The ignition of the match composition will ignite the black powder delay train.

JAPANESE STICK GRENADE



Legend

- | | |
|---------------------|-----------------------|
| 1. Screw Cap. | 7. Tar. |
| 2. Pull Ring. | 8. Grub Screws. |
| 3. Pull String. | 9. Delay Pellet. |
| 4. Grenade Handle | 10. Tar |
| 5. Friction Igniter | 11. Explosive Filler. |
| 6. Sand Connection | 12. Grenade Body |
| | 13. Separator. |

C O N F I D E N T I A L

Data

Overall length 7-3/4 inches.
Maximum diameter 1-5/16 inches.
Color Body black; handle unpainted.
Total weight 1 lb. 3 oz.
Filling Cast Picric Acid.
Weight of filling 3 oz.
Delay 4 - 5 seconds.

JAPANESE

STICK GRENADE

Description

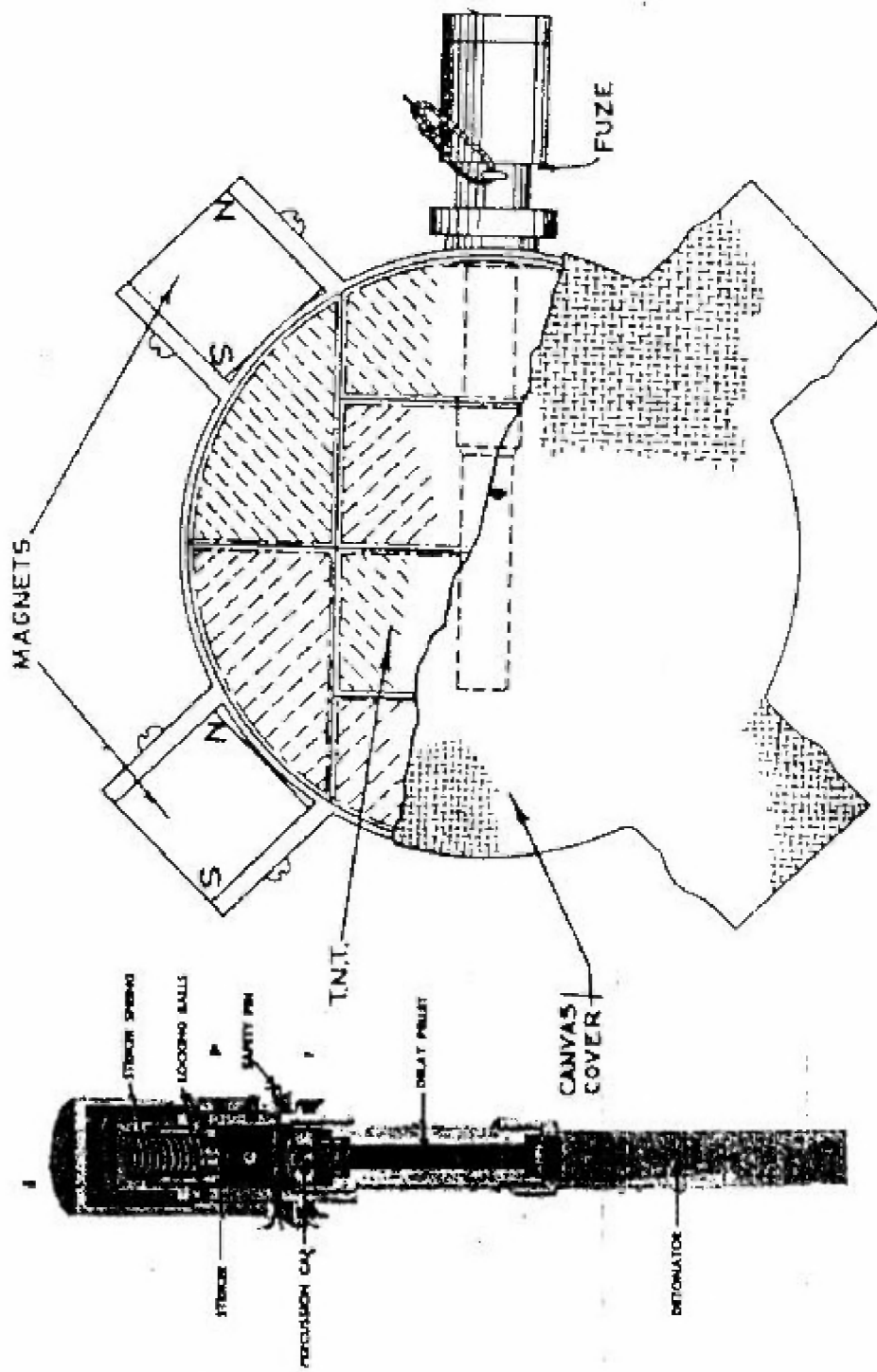
The body is cylindrical in shape and is made of cast steel 1/4" thick. The handle is turned from soft wood and slips into the steel body where it is held by three screws. This joint is sealed with a coating of tar. The screw cap at the pull end of the handle is of light tin plated steel.

The fuze consists of a friction ignition composition with a sanded string running through it. This string extends up the hollow handle and is connected to a pull ring which is exposed by removing the screw cap at the top of the handle.

Operation

The screw cap is removed from the top of the handle. The ring inside the handle is then pulled. This draws the sanded string through the ignition composition igniting the 4 or 5 second delay. The delay train detonates a cap which detonates the main charge.

This grenade has more fragmentation effect than the German H.E. Stick Grenade.



JAPANESE HAKOBAKURAI TYPE ANTI-TANK GRENADE

C O N F I D E N T I A L

Data

Diameter 4-3/4 inches.
Thickness 1-1/2 inches.
Color Khaki
Total weight 2 lbs. 11 oz.
Length of Fuze Assembled . . . 5-1/4 inches.
Delay 5 - 6 seconds.
Filling T.N.T.

JAPANESE
ARMOR PIERCING
GRENADE MOD. 99
"HAKOBAKURAI"

Description

This mine is of a size so that its use as a grenade is quite possible. It consists of eight separate sections of Cast T.N.T. wrapped in wax paper, all held together in a khaki color canvas cover. The general shape of the mine is that of a flat disc, resembling a water bottle. It is easily recognized by four equally spaced permanent magnets attached by khaki webbing to the outer edge of the mine body.

The fuze contains two springs, a compression spring and a firing-pin spring, the latter of which is contained in a firing pin sleeve. Four steel retaining balls fit into holes in the fuze body and notches in the firing pin sleeve retaining the position of the firing pin. A fuze cap provides a base for the two springs and is grooved on the inside about 1/3 of the way up from its base. There is a safety pin which passes through the fuze body just below the base of the safety cap and between the striker and the percussion cap. The powder delay train threads into the base of the fuze body, and the detonator tube threads over the base of the delay train container.

Operation

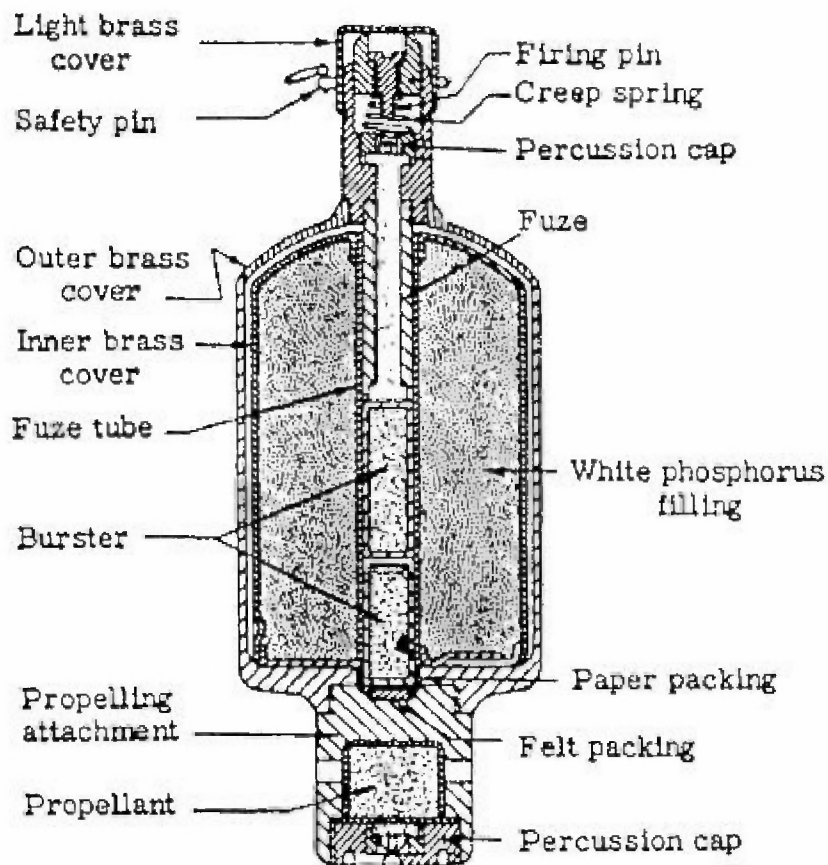
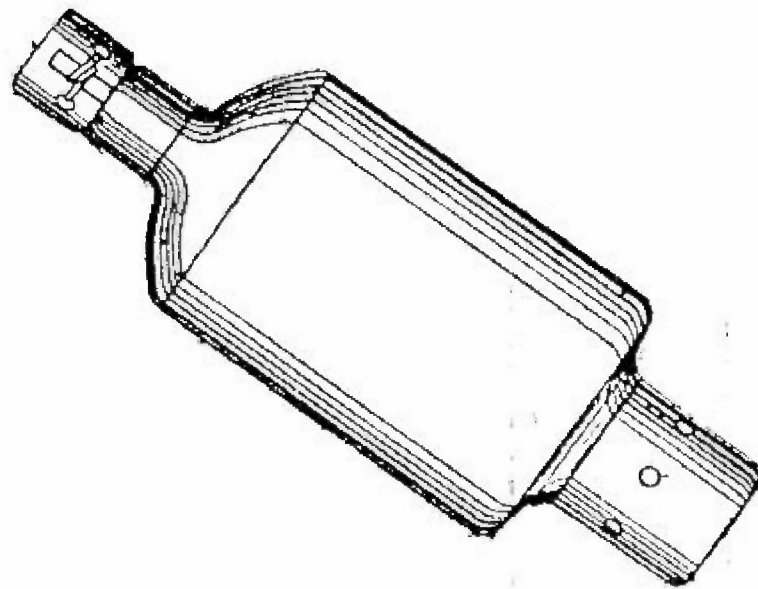
The fuze is carried separately and is secured to the mine by a locking ring. The mine is then slapped against an armored surface, the safety pin is pulled, and the fuze cap is given a sharp rap. This forces it downward against the compression spring, compressing the firing pin spring, and presenting the groove to the retaining balls. The compression of the firing pin spring forces the balls outward into this groove and shoots the firing pin into the percussion cap.

The mines are often coupled together and when so used will penetrate 1-1/4" steel plate.

Remarks

Japanese Armor Piercing Mine - Kyubaku Bakurai.

This is of the same nature as above but is shaped like a bun with a flat base. The magnetized surface is the base. With this increased magnetic property it can be tossed from a range of ten feet.



JAPANESE $\frac{1}{2}$ KG. INCENDIARY GRENADE

JAPANESE

1/2 KG.

INCENDIARY GRENADE

Data

Overall length 5.6 inches.
 Maximum diameter 2.0 inches.
 Body (material) Brass.
 Weight 1.1 lb.
 Filling White phosphorus.
 Delay 4 - 5 seconds.

Description

This grenade may be thrown by hand or projected with the 50 mm grenade discharger, Model 89. The incendiary filling is contained in brass body which may have a propelling charge on the base.

The fuze is similar to the one used in the Types 91 and 97 fragmentation hand grenades. The fuze consists of a brass inertia pellet with a steel firing pin separated from the primer by a creep spring. The inertia weight is held into the fuze by a light brass cap which is crimped into a cannellure in the fuze body so as to prevent the firing pin from reaching the primer. The firing pin is threaded into the inertia weight, and, before arming, it is not screwed in far enough and its point does not protrude below the base of the inertia weight. Therefore, before using the grenade it is necessary to screw the firing pin into the inertia weight so that it will protrude. In addition, a double brass safety pin fits through holes in the brass cap and fuze body into holes in the inertia weight thus preventing the firing pin from reaching the percussion cap.

The delay pellet screws into the base of the fuze and contains a small quantity of granular black powder in the top and a highly pressed pellet of black powder in the lower section. A hole drilled in the side of the fuze contains a fuzible plug which melts when the black powder burns, allowing the escape of the gases formed on combustion of the delay train. The escape of these gases will enable the thrower to know if the delay pellet has ignited. Beneath the primer is a 4 to 5 seconds delay pellet which will detonate a central burster tube.

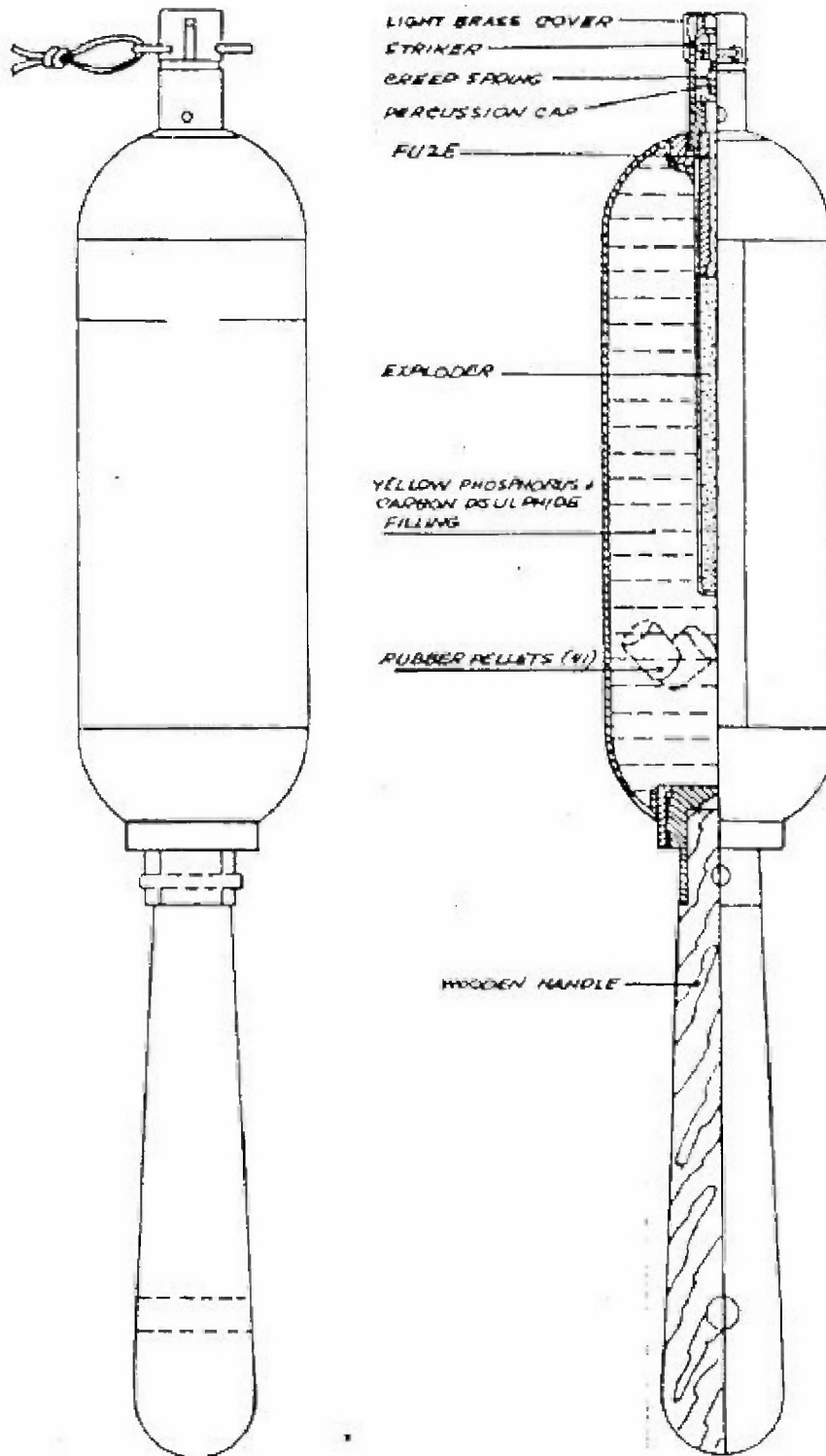
The steel propellant container is 1 1/4" long, 1.02" in diameter, and has six perforations in its walls. It is screwed into the base of the body. A perforated plug screws into the base of this container and in a cavity in this is a percussion cap. Two flash holes lead through the percussion cap holder to a small quantity of black powder. A perforated steel disc covers the plug and inside the propellant container proper is a copper cup containing flakes of nitrocellulose propellant powder.

Operation

The firing pin must first be threaded down into the inertia weight. The safety pin must then be withdrawn. If the grenade is to be thrown by hand, it is necessary to strike the inertia weight on some hard object thus driving the firing pin into the primer to ignite the delay train.

If the grenade is to be fired from the grenade discharger, or knee mortar as it is sometimes called, the grenade with propellant container is dropped base first into the discharger. When the trigger mechanism of the discharger is operated, its firing pin strikes the percussion cap igniting the propelling charge which propels the grenade. Force of setback causes the firing pin in the grenade fuze to compress the creep spring and hit the primer to ignite the delay train.

JAPANESE INCENDIARY STICK GRENADE



JAPANESE

INCENDIARY STICK GRENADE

Data

Overall length 13.2 inches.
Maximum diameter 2.1 inches.
Length of handle 5.3 inches.
Filling Phosphorus and carbon
disulphide.
Weight of filling 2 lbs. 3½ oz.
Delay 6 seconds.

Description

This grenade body is long and cylindrical with hemispherical ends. The handle is solid and has a transverse hole drilled through one end. The body is filled with 41 phosphorus-impregnated rubber pellets in carbon disulphide. These pellets are scattered by means of a small central bursting charge. It is possible that the grenade is sometimes filled with a phosphorus smoke filling. The handle protrudes from one end of the body, the fuze from the other.

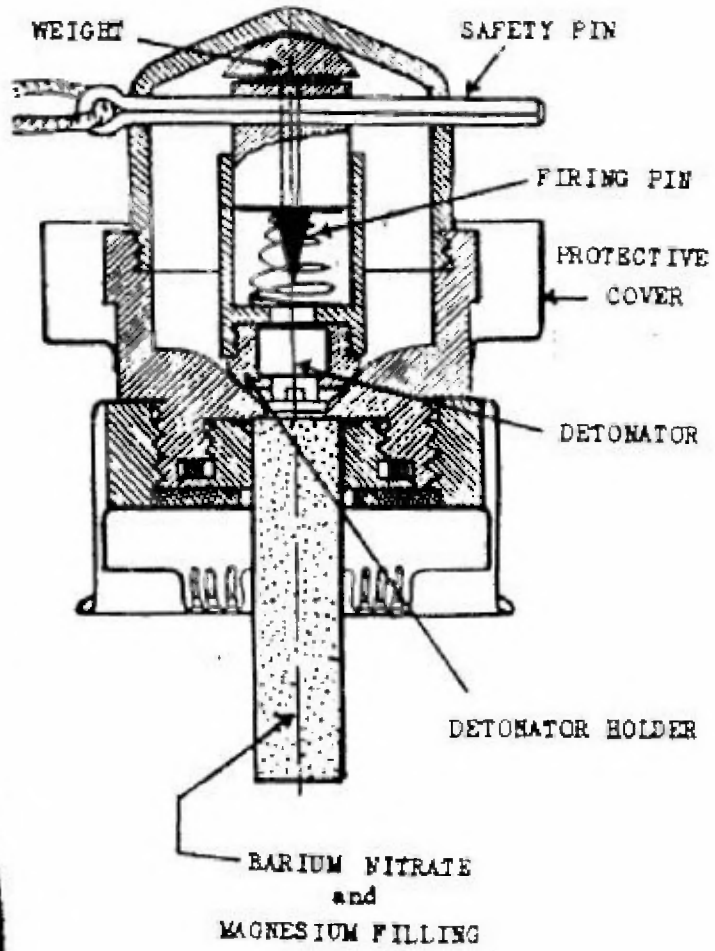
The fuze consists of a brass inertia pellet with a steel firing pin separated from the primer by a creep spring. The inertia weight is held into the fuze by a light brass cap which is crimped into a cannellure in the fuze body so as to prevent the firing pin from reaching the primer. The firing pin is threaded into the inertia weight, and, before arming, it is not screwed in far enough and its point does not protrude below the base of the inertia weight. Therefore, before using the grenade it is necessary to screw the firing pin into the inertia weight so that it will protrude. In addition, a double brass safety pin fits through holes in the brass cap and fuze body into holes in the inertia weight thus preventing the firing pin from reaching the percussion cap.

The delay pellet screws into the base of the fuze and contains a small quantity of granular black powder in the top and a highly pressed pellet of black powder in the lower section. A hole drilled in the side of the fuze contains a fuzible plug which melts when the black powder burns, allowing the escape of the gases formed on combustion of the delay train. The escape of these gases will enable the thrower to know if the delay pellet has ignited.

Operation

The firing pin must first be threaded down into the inertia weight. The safety pin is then withdrawn. Just before throwing, it is necessary to strike the inertia weight on a hard object, driving the striker down into the primer and igniting the delay. The detonation of the burster tube will scatter the incendiary pellets which will ignite spontaneously.

'ALL-WAYS' FUSE



JAPANESE
MOLOTOV
COCKTAIL

CONFIDENTIAL

Data

Overall length 11-1/4 inches.
Maximum diameter 2-1/3 inches.
Filling Any inflammable, benzene type liquid.
Capacity 12 ounces.

JAPANESE

MOLOTOV COCKTAIL

Description

The body of this grenade consists of a Japanese beer bottle into the top of which is fitted an "all-way" action fuze. There is a rubber washer under the fuze to render it liquid tight, and the fuze fits into the neck of the bottle in the manner of a crown stopper.

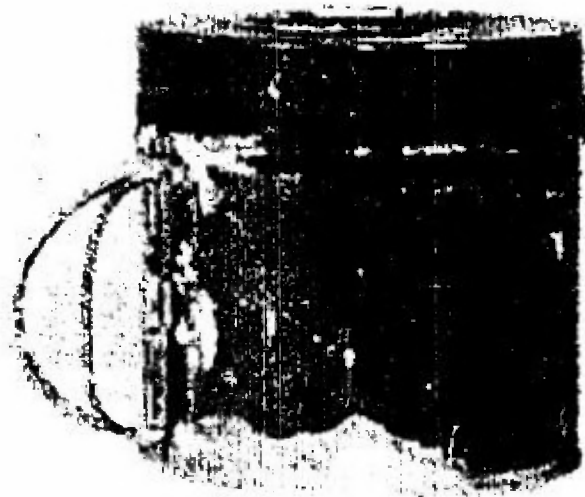
The fuze consists of a firing pin contained in a housing and separated from the detonator contained in a carrier by a safety pin and a creep spring. The firing pin housing has a hemispherical weight on the top of it and bears against the underside of the nose cap which is of a similar shape. The bottom of the detonator carrier is also rounded and bears against a cam surface so that it too is free to move. The safety pin runs through the firing pin housing and rests against the top of the detonator carrier so that neither part is free to move. Beneath the detonator there is an incendiary mixture consisting of barrium nitrate and magnesium.

Operation

The safety pin is pulled out and the grenade is thrown. On impact the "all-ways" fuze will function and set off the detonator thus igniting the incendiary booster and inflammable filler.



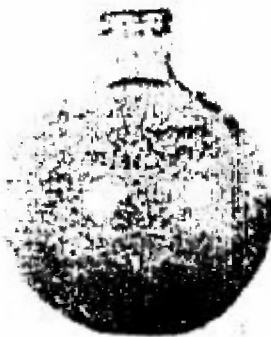
HCN GRENADE
COPPER STABILIZED
TYPE



HCN GRENADE
CONTAINER



COPPER
STABILIZED
TYPE



172 B-K
OR
172 C-K



SMOKE

JAPANESE FRANGIBLE HCN
AND SMOKE GRENADES

C O N F I D E N T I A L

FRANGIBLE H.C.N. GRENADES

Data

Maximum diameter	3.9 inches
Total weight	1.2 lbs.
Filling	Hydrocyanic acid.
Weight of filling	12.2 fluid oz.
Capacity	14.5 fluid oz.

Description

These grenades are recognizable mainly as round glass bowls filled with H.C.N. They differ in minor details.

1. The copper stabilized type is round bottomed whereas the 172 B-K and 172 C-K have flat bottoms.
2. The copper gives one a yellow tint while the other two appear to be light green.
3. The copper stabilized type has one moulded ring around the outside instead of two as the others have.
4. The copper stabilized type is closed by a crown cap over a cork stopper and the other two are closed by a crown cap over a rubber washer.
5. The copper stabilized type is carried in a sheet metal container and the 172 B-K and 172 C-K are carried in cardboard containers.

The grenades contain 12.2 oz. of liquid which is about 80% hydrocyanic acid. This is a very strong systemic poison.

Operation

The grenade is thrown and on impact the glass will break releasing the H.C.N. This gas is swift and deadly if inhaled. In such quantities the gas is exceptionally non-persistent so these grenades are designed for use in small closed spaces such as pillboxes or tanks.

FRANGIBLE SMOKE GRENADE

Data

Overall length	3.3 inches.
Maximum diameter	2.6 inches.
Circumference	9.3 inches.
Color	Light yellow.
Total weight	9.7 oz.
Filling	Titanium & silicon tetrachloride.
Weight of filling	4.1 oz.

Description

This grenade is a flat bottomed spherical container made of clear glass. It has a short neck closed by a red rubber stopper held under a red rubber washer within an inner iron crown cap, this being enclosed by a heavier iron outer crown cap. The filling is a mixture of titanium and silicon tetrachloride which will be hydrolyzed by the moisture of the air, with the formation of hydroxides and hydrochloric acid.

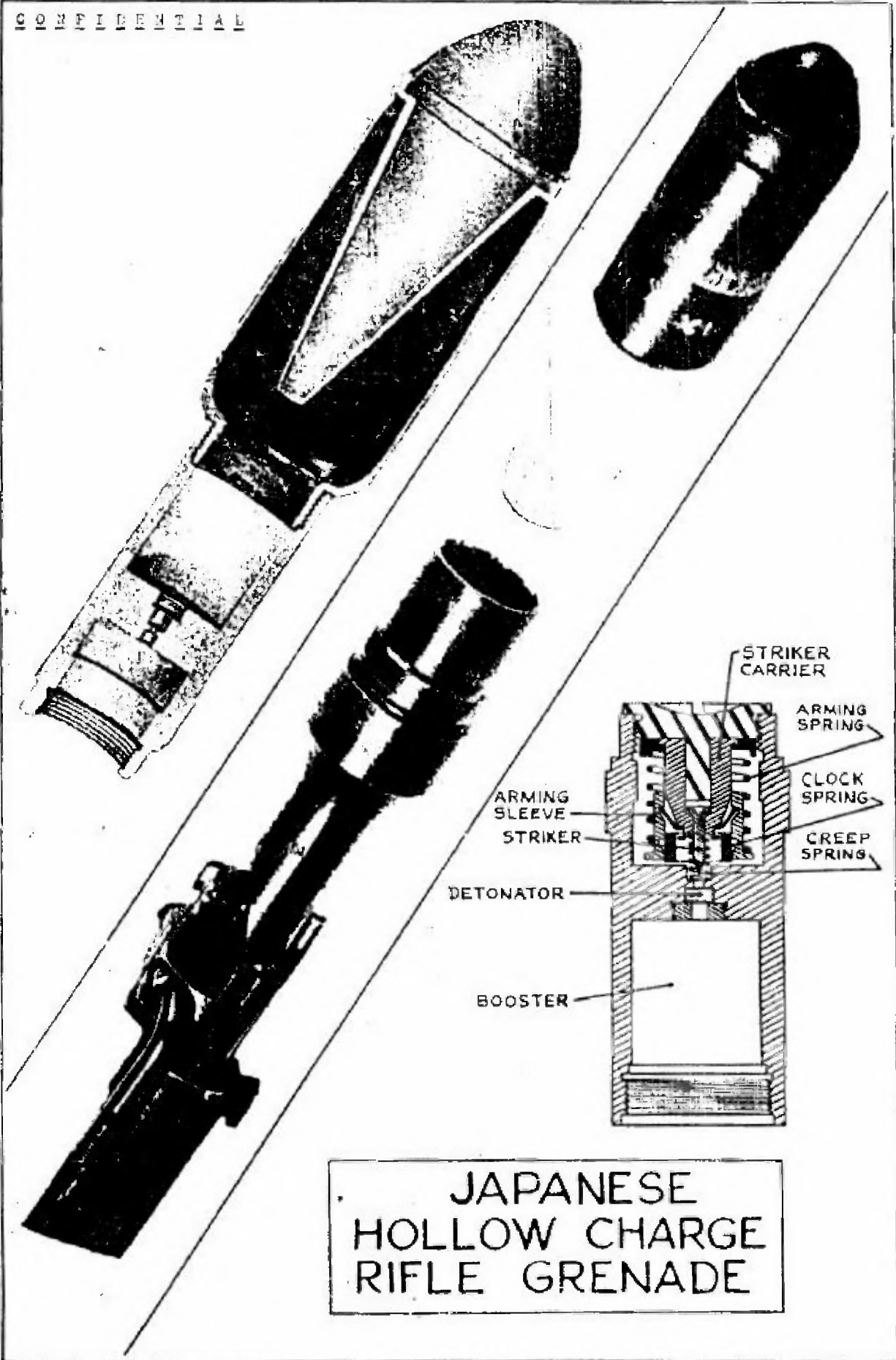
Operation

The grenade is thrown and on impact the glass bottle breaks releasing the fluid and producing smoke. It is intended for use in screening operations. Though the filler is irritating to the skin as a liquid, in ordinary field concentrations the smoke is hardly irritating enough to cause coughing.

JAPANESE

FRANGIBLE
H.C.N. GRENADES

FRANGIBLE
SMOKE GRENADE



JAPANESE
HOLLOW CHARGE
RIFLE GRENADE

C O N F I D E N T I A L

JAPANESE

HOLLOW-CHARGE RIFLE GRENADE

Data

Overall length 7.90 inches.
Maximum diameter 1.50 inches.
Color Black and grey.
Total weight 12.45 oz.
Filling T.N.T.
Weight of filling 3.81 oz.

Description

This grenade is a copy of the German Groeg Gewehr Panzergranate and is fired from a cup launcher attached to the standard 6.5 mm. rifle.

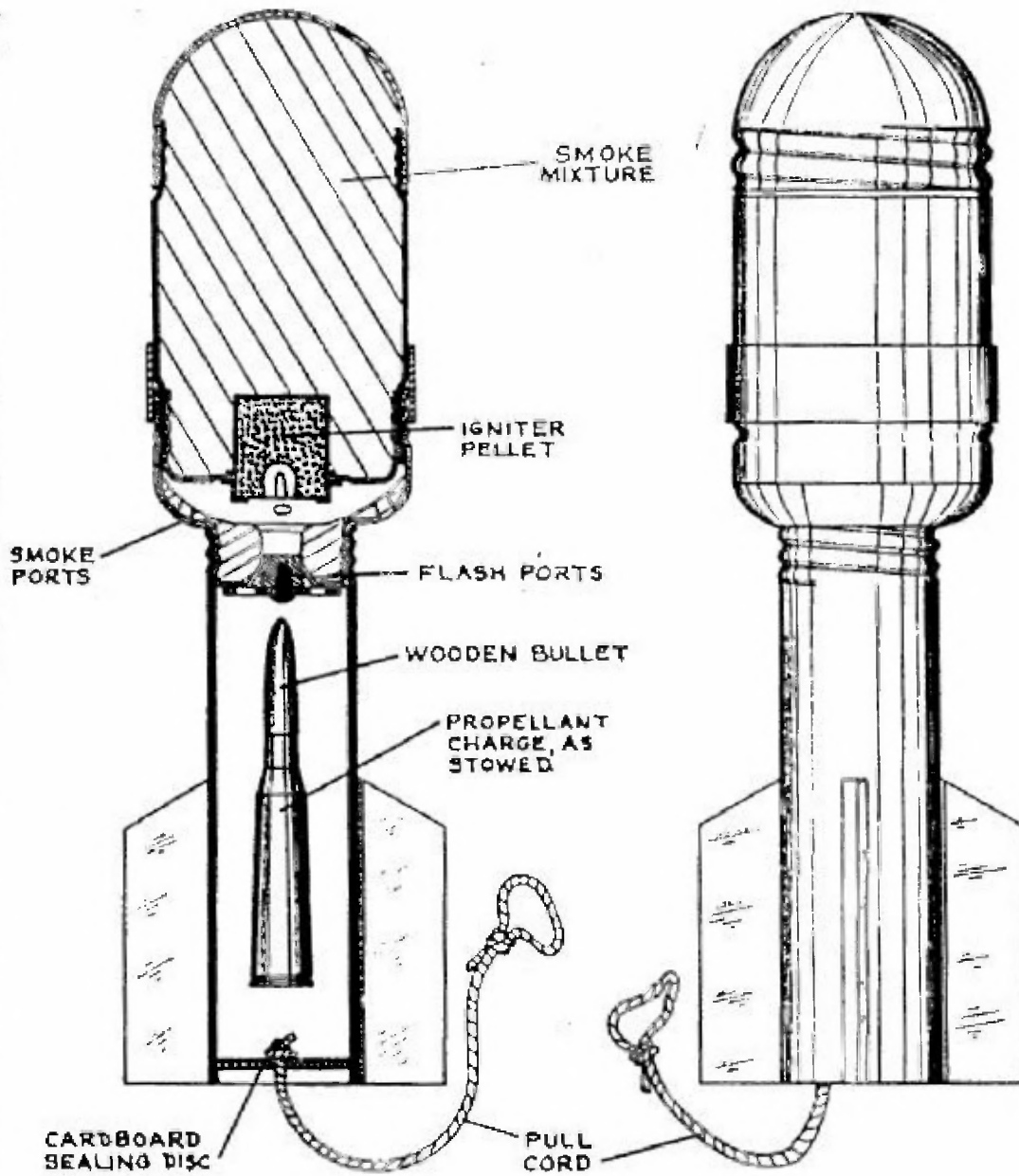
The body is cylindrical with a semi-conical snaped head. It is made in two parts threaded together and fitted with a ballistic cap and cone to give the hollow-charge effect. The forward part contains the explosive charge cast around the cone. The after part which is made of aluminum has a rifled collar near the base and contains the fuze and explosive train.

The fuze is held in by a base plate with a protruding spigot which is screwed into the base of the grenade. The fuze is held in position by the spigot. The needle firing pin is secured in a housing that has four stirrup like springs protruding from the side. Around the housing is a setback spring held in by an arming sleeve which has two sets of grooves notched on the inner side. Holding the firing pin stationary is a coiled clock spring which is held in by the arming sleeve. There is also a creep spring between the firing pin and detonator.

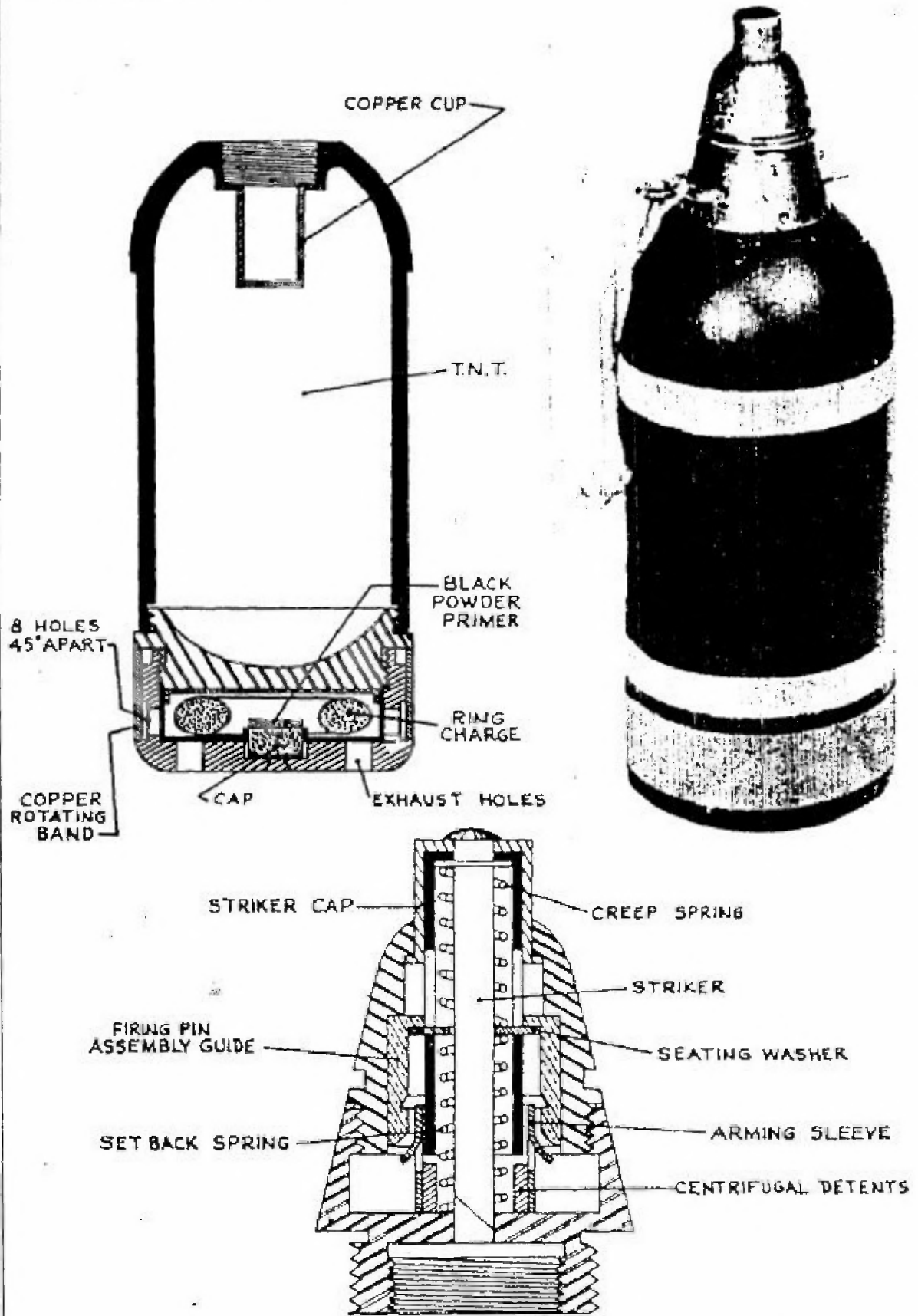
The propelling charge consists of a special cartridge with a wooden bullet.

Operation

On firing, setback causes the arming sleeve to move down and it is held down by the stirrup springs which engage in the groove in the arming sleeve. Centrifugal force then causes the clock spring to expand and the fuze is armed. On impact the firing pin housing overcomes the creep spring and moves onto the flash cap setting off the detonator and booster.



JAPANESE
RIFLE SMOKE GRENADE



JAPANESE TYPE 89 MORTAR GRENADE

C O N F I D E N T I A L

Data

Overall length 6-1/4 inches.
Maximum diameter 50 mm.
Color of body Black.
Markings Tip 5/16" red band.
Below bourrelet 5/16" yellow band. Below driving band 5/16" white band. Midway on shell 5/16" yellow band is placed sometimes in lieu of the other two mentioned white & yellow bands.
Total weight 1.6 lbs.
Fuze Instantaneous impact.
Filling T.M.T.
Weight of filling 5.4 ozs.

Description

The body of this shell is made of three parts. The propellant base housing is made of steel and contains the propellant container and the propellant container cover. A 5/8" wide copper rotating band is recessed into it immediately over eight 3/16" holes. The band is held in place by 5 steel pins. The percussion primer is contained in the base of the housing.

The main shell base cover is threaded to the top section on one end and to the propellant base housing on the other. The top section is of steel 5/32" thick and has an opening in the top into which the fuze fits.

All items of the fuze are constructed of brass except the firing pin, which is steel, and the arming sleeve, which is made of tinplate. A setback spring holds the firing pin assembly guide up off of the arming sleeve. The arming sleeve has two centrifugal detents within it. The striker cap encases the forward end of the striker and the upper spring. There is a spring retainer between the two springs.

The two-pronged safety pin passes through the fuze body immediately beneath the firing pin assembly guide. The propellant is composed of nitrocellulose diphenylamine flakes.

Operation.

This shell is fired from the Type '89 Grenade discharger. The safety pin is removed and the shell is dropped into the open end of the discharger. When the trigger mechanism of the discharger is operated, the firing pin of the discharger hits the percussion cap, and the flash from this ignites the black powder and then the propellant powder. The gases generated blow through the perforations in the base housing, expanding the copper rotating band into the rifling of the discharger giving a gas seal and imparting rotation to the shell. The shell can be thrown from 140 to 700 yards depending upon the setting of the discharger.

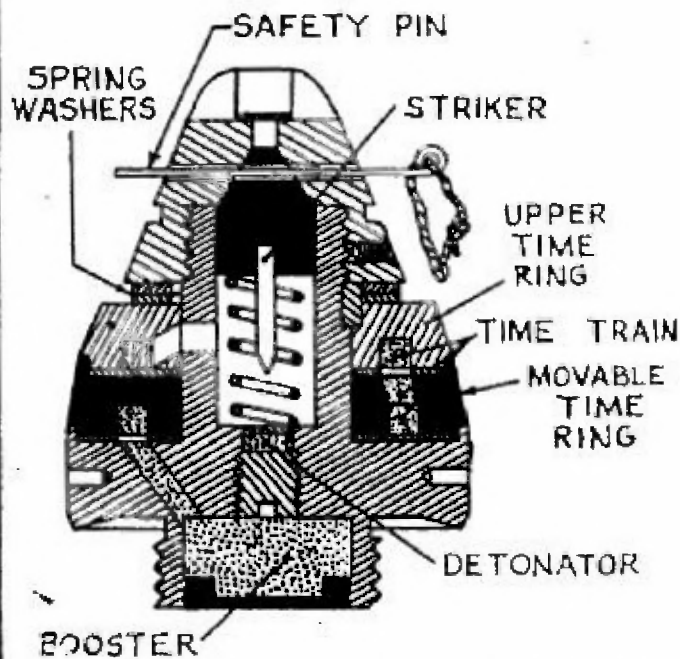
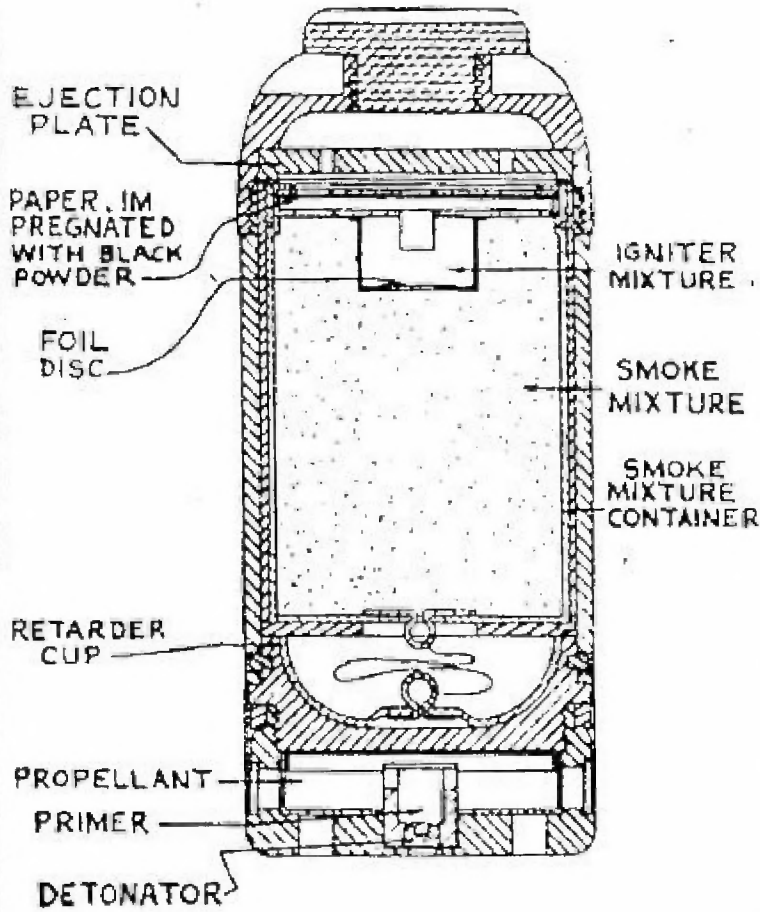
Setback action on firing causes the firing pin assembly guide in the fuze to move downward compressing the setback spring and bending the three prongs on the arming sleeve back into the contour of the sleeve, thus allowing the firing pin assembly guide to completely cover the arming sleeve. When setback ceases, the setback spring forces the firing pin assembly guide and the arming sleeve forward again. As soon as the arming sleeve is clear of the centrifugal detents they move outward and the striker is free to hit the detonator upon impact. It has been concluded that the effective radius of the shell is rather limited and the casualty effect of nearby bursts should be small.

JAPANESE

MODEL 89

MORTAR GRENADE

H.E. SHELL



JAPANESE
SMOKE
MORTAR GRENADE

CONFIDENTIAL

Data

Overall length 6-1/4 inches.
Maximum diameter 50 mm.
Color Black.
Markings On tip, 5/16" red band. Below bourrelet, 5/16" white band. Just above rotating band, 5/16" white band.
Total weight 1.9 lbs.
Fuze Type '89 small time fuze.
Filling Hexachlorthane smoke mixture.
Weight of filling 3.70 ozs.

Description

The projectile casing is of forged steel. The nose screws onto the main body at a point just behind the bourrelet. The main body is jointed to the base with a press fit, held by four screw shear pins. The base is constructed of two sections, screwed together. The upper section fits into the main body. The lower section is fitted with a copper rotating band and contains the primer and propellant charge. The lower section has eight holes in the base to allow the gases to escape into the discharger, and eight holes beneath the rotating band so that the gases force the band into the rifling of the discharger. The smoke mixture is held in a brass cup inside the main body.

The propellant charge is of nitrocellulose diphenylamine flakes.

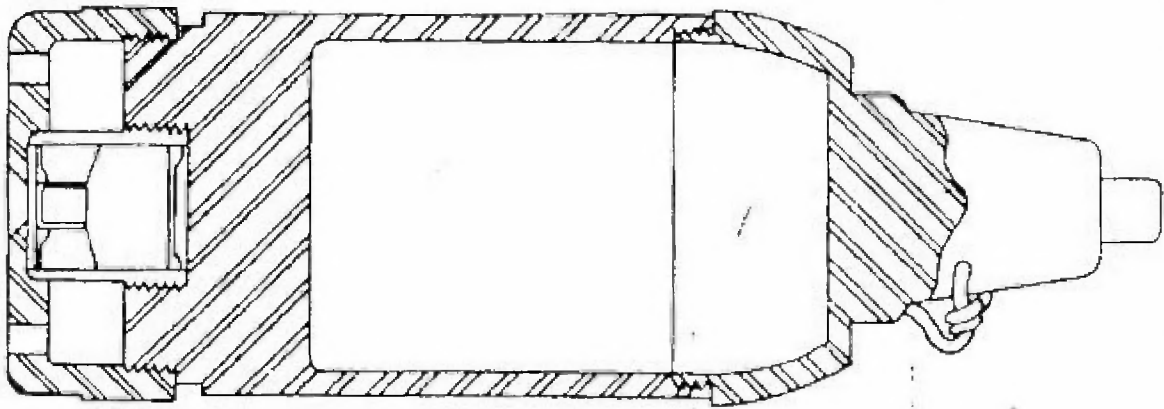
The fuze is of a pyrotechnic delay train type. The striker is held by a safety pin and creep spring. Settings are acquired by rotating the lower ring in relation to the gradations in the fuze body. This positions a port in the lower ring in relation to the upper pyrotechnic train. The fuze is marked in gradations of hundreds of feet, not units of time.

Operation

The safety pin is pulled out and the shell is dropped, base first, into the discharger. When the trigger mechanism of the discharger is operated, its firing pin fires the percussion cap and this ignites the black powder and in turn the propellant powder. The gases generated blow through the perforation beneath the rotating band, expanding it into the rifling and providing a gas seal. The shell can be propelled from 140 to 700 yards.

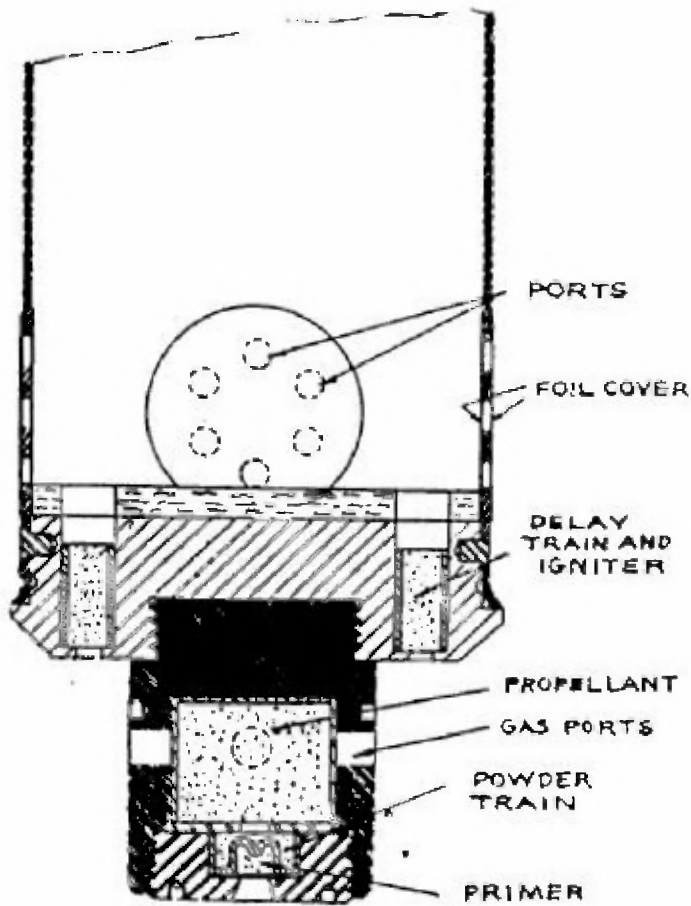
On setback, the striker overcomes the creep spring and initiates the lower powder train. This burns in a clockwise direction until it reaches the pre-adjusted port and then the upper train is ignited. This burns in a counter clockwise direction until it reaches the port in the fuze base leading to the explosive charge in the gaine. This charge ruptures the thin plate in the base of the fuze gaine, ignites the smoke starter mixture, and expels the smoke candle from the shell casing.

JAPANESE
MODEL 89
MORTAR GRENADE
SMOKE SHELL



PRACTICE SHELL

JAPANESE MORTAR GRENADES



INCENDIARY SHELL

C O N F I D E N T I A L

JAPANESE

MOD.89 MORTAR GRENADE

**INCENDIARY AND
PRACTICE SHELL**

Data

Overall length 6-1/4 inches.
 Maximum diameter 50 mm.
 Color Aluminum.
 Weight 1.25 lbs.
 Filling Potassium Nitrate,
 47.7%; Aluminum, 21.7%;
 Sulphur, 19.8%; Anti-
 mony trisulphide, 6.1%;
 wax, 2.8%.
 Weight of filling 0.67 lbs.

Description

This shell is a cylindrical sheet metal tube with a semi-hemispherical nose, and is covered with a clear lacquer. Around the side of the grenade are four silver foil discs, each disc covering seven ports in the grenade casing. The base is of light metal threaded to receive the propelling charge. The propelling charge is of the same type as that used with the Model 91 grenade. The charge is ignited by two black powder pyrotechnic trains that run through the base of the grenade. These are actuated by the flash of the propellant.

Operation

The shell is dropped into the discharger base first. When the trigger mechanism of the discharger is operated, the firing pin hits the percussion cap in the propellant charge which propels the shell out of the discharger and ignites the delay train in the base of the shell. This in turn ignites the incendiary filling.

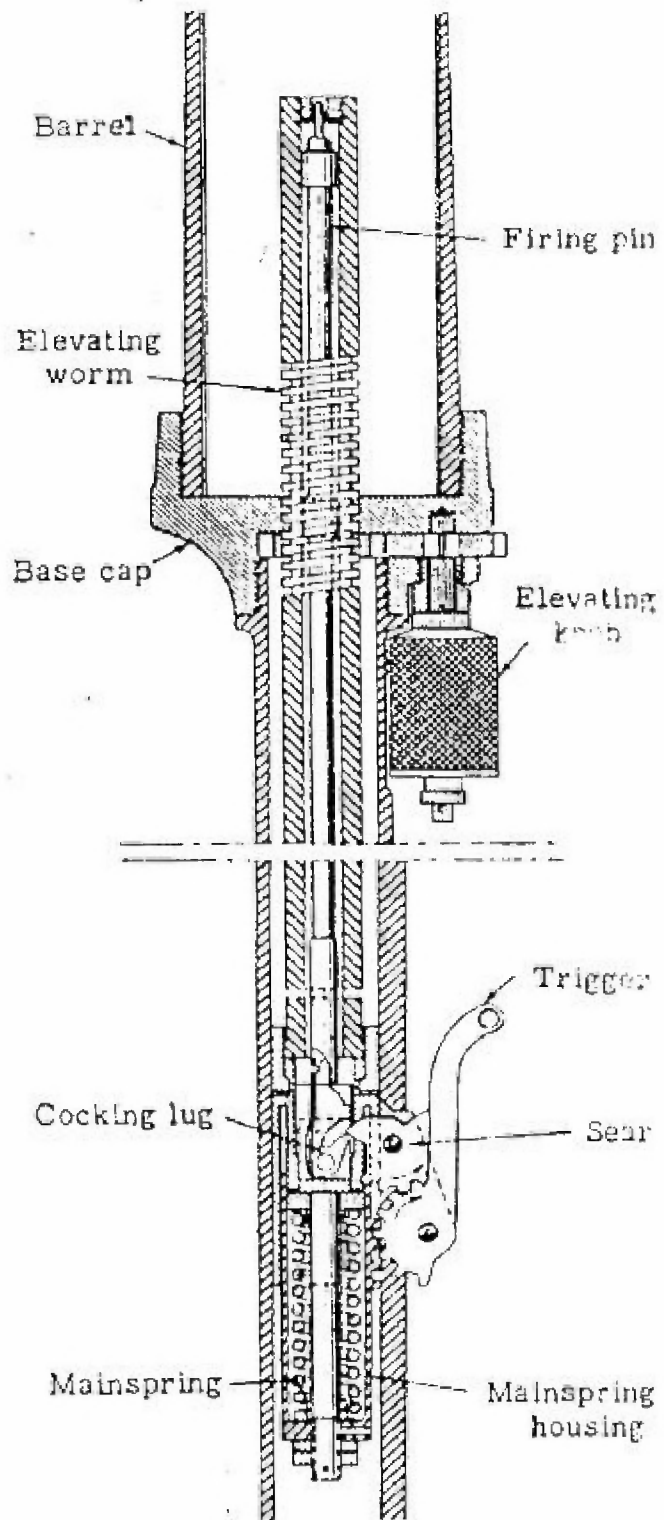
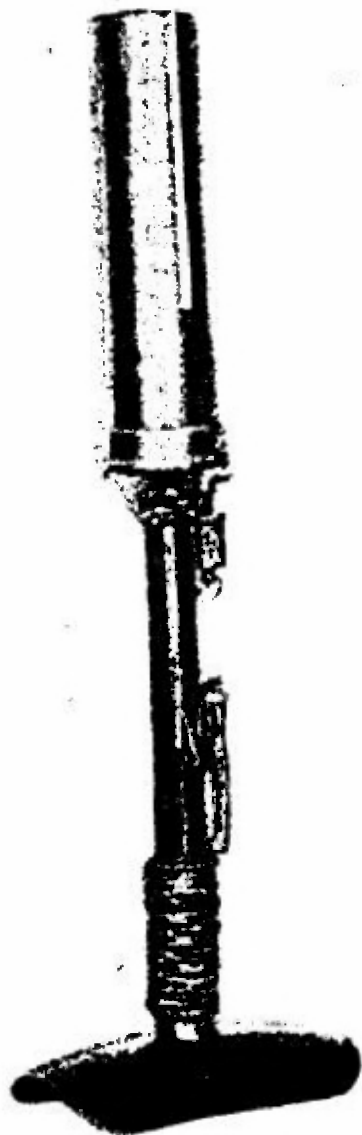
PRACTICE SHELL

Data

Overall length 6-1/4 inches.
 Maximum diameter 50 mm.
 Weight 1.6 lbs.

Description

The practice shell is of same outward shape and dimensions as the H.E. shell. It does not have the red band around the nose, however, as that is the Jap way of indicating a filled shell. The base of the practice shell is made of one part only. The propellant base housing is threaded directly on to the main shell base. The main shell base is of heavier construction than is that of the H.E. shell.



JAPANESE MODEL 89 GRENADE DISCHARGER

C O N F I D E N T I A L

Data

Overall length 24 inches.
Length of barrel 10 inches.
Weight 10-1/4 lbs.
Maximum Range
Model 89 Shell 770 yards.
Model 91 grenade 175 yards.

JAPANESE

MODEL 89
GRENADÉ
DISCHARGER

Description

This 50 mm. discharger can fire either the Model 89 shell or the Model 91 grenade. It is constructed of a steel, pipe-like, rifled barrel which is attached to a small base. The base is curved so that it may be fitted over a medium-sized tree trunk or log. Between the barrel and the base is the trigger housing containing the cocking and firing mechanism and range - adjusting assembly.

The discharger has range scales on both sides of the trigger slot and the weapon can be set at the desired range by turning the elevating knob. When the knob is turned, it lengthens or shortens the distance that the trigger housing protrudes inside the barrel of the discharger thus regulating the distance the projectile travels through the barrel. Behind the firing pin housing is the main spring and mainspring housing. The trigger protrudes through a lengthwise slot in the pedestal or trigger housing.

Operation

The safety pin on the shell is removed, and the shell is placed in the barrel and allowed to drop to the firing pin housing, where it remains until fired. The trigger is then pulled and the cogs in the trigger move the main-spring housing forward by engaging the cogs in the front of the housing, thereby causing the mainspring to be compressed. As this action takes place, the rear on the trigger engages against the cocking lug on the firing pin shaft. A continued pull on the trigger allows the rear to become disengaged from the cocking lug, and the compression of the mainspring, upon being released, sends the firing pin forward and sets off the propellant.