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Safety Precautions To Be Observed In Handling German Munitions Fuzes and Fuzed Projectiles

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FEBRUARY 18, 1918

PRINTED BY
G-2-C (TOPOGRAPHY) G. H. Q. A. E. F.
1918

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SAFETY PRECAUTIONS TO BE OBSERVED IN HANDLING GERMAN MUNITIONS

FUZES AND FUZED PROJECTILES

1. Fuzed projectiles or loose fuzes found or captured will be examined as soon as practicable by an officer only, to determine whether or not they are safe for handling, and also if they are of a new or unusual type. If the latter condition is established, they will be reported to an Intelligence Officer for disposition.

Unsafe projectiles and fuzes of known or usual types will be conspicuously marked or protected pending disposition by destruction or burying.

2. German fuzes may be classified as to location in the projectile as Point and Base. Point fuzes are more frequently encountered than base fuzes, and are visible from an outside inspection of a projectile, except in the following cases:

(a) Projectiles employing point fuzes, but fitted with a "false" (ballistic windshield) cap.

(b) The 77 mm. anti-tank shell (K. Gr. 15 m. P.).

(c) A variation of the 77 mm. long high explosive shell, when provided with the fuze, "L. K. Z. 16 m. V."

These projectiles may be readily distinguished from base fuzed projectiles from an inspection of the base, which bears no indication of the presence of a fuze.

Base fuzes, as a rule, are found in large-caliber howitzer projectiles and in medium and large-caliber projectiles used in high velocity long-range guns. The indications of the presence of base fuzes, to be expected from an outside inspection of a projectile, are a view of the fuze itself, or of the metal fuze cover disc on the base of the projectile.

3. In general, the safety of a point fuzed projectile may be determined in the following manner:

(a) Many types of point fuzes are provided with a safety pin which passes through the fuze body and one of the active ele-

ments inside. If this pin is rusty, or if the construction of the fuze indicates that a safety pin was provided, but is missing, the fuze and projectile should be regarded as unsafe for handling or transportation.

(b) Many types of fuzes are provided with gas escape holes covered by a small metal disc sealed with a drop of wax. The absence of the gas escape hole cover indicates that the fuze has functioned in part, which should cause the fuze and projectile to be regarded as unsafe for handling or transportation.

(c) "Instantaneous" fuzes are provided with a safety cap for the protection of the seat for the percussion plunger rod. The absence of the safety cap, or the presence of the percussion plunger rod projecting from the point of the fuze should cause the fuze and projectile to be regarded as unsafe for handling or transportation.

4. Unexploded base fuzed projectiles, and those provided with non-apparent point fuzes, should be regarded as dangerous for handling or transportation until examination by an experienced officer shows that they are safe.

5. German fuzes should never be placed in water with a view to rendering them harmless. Many types of their fuzes contain an internal safety device, composed of a mass of compressed powder, which, if softened or dissolved by moisture, may permit the arming of the fuze, and may thus render a safe fuze dangerous for handling or transportation.

6. "Minenwerfer" projectiles are provided with point fuzes which, in general, are similar in appearance, action and safety arrangements to fuzes provided for guns and howitzers; however, the recent development of a minenwerfer fuze which functions from lateral as well as longitudinal shock should cause these projectiles to be regarded with greater suspicion than those provided for guns and howitzers.

7. Data as to characteristics and illustrations showing appearance and markings of various fuzes and projectiles known to be in service in the German army will be found in appropriate handbooks.

8. Gas shell for guns, howitzers and minenwerfer are provided with point fuzes of the same general appearance and characteristics as those provided for high explosive shell; the safety rules above given for point fuzes therefore apply.

9. Leaking gas shell should be buried in at least three and one-half feet of earth and in addition the following should be carried out:

(a) Blue Cross, Green Cross, gun or howitzer shell, and all

minenwerfer shell marked with one or more white bands or the letters "B," "C" or "D" should first be covered with a layer of lime.

(b) Yellow Cross shell should first be covered with a layer of chloride of lime.

10. Gas shell should never be thrown in water, for not only may the safety device of the fuze become ineffective (see par. 4), but the water may become poisoned. Gas shell, if safe for handling, should always be stood on the base in order to prevent the possibility of the liquid coming into contact with the fuze (see par. 4).

GRENADES.

11. German grenades may be classified as Explosive Hand Grenades, Gas Hand Grenades and Explosive Rifle Grenades.

Grenades found or captured will be examined as soon as practicable, only by a trained bomber or an officer who thoroughly understands the construction and functioning of grenades in general. This examination has for its purpose the determination of whether or not the grenade is of a new or unusual type and the matter of its safety for handling and transportation.

Unidentified or unusual types and their fragments will be reported to an Intelligence Officer for disposition. Unsafe grenades of known types will be conspicuously marked or protected, pending disposition by burying or destruction.

EXPLOSIVE HAND GRENADES.

12. *Cylindrical Grenade with Wood Handle, Old Type.* (See figures 1, 2, 3 and 4.) There are two variations of this type, both being exploded by a friction time fuze and pull cord or wire. In the earlier model, the pull cord is secured to the lower part of handle by a paper band; in the later model, the pull cord is coiled in a cavity in the base of the handle, which is closed by a metal screw cap. If found with paper band broken and pull cord free, or handle screw cap missing, the grenade is live and should be handled with care.

13. *Cylindrical Time Grenade with Metal Handle, 1917 Type.* (See figure 5.) This grenade differs from No. 1, in being provided with an aluminum handle painted "field gray." It is exploded by a friction time fuze and pull cord or wire; the latter is attached to a weight seated in a cavity in the bottom of the handle, and is held in place by a screw cap.

If found with handle screw cap missing, the grenade is live, and should be handled with great care.

14. *Cylindrical Percussion Grenade with Wood and Metal Handle ("Wilhelm").* (See figure 6.) This grenade is similar in appearance to No. 1, except that the upper half of its handle is of metal, the cylinder is of slightly greater diameter, and the belt hook is missing. There are two variations of this type; in one, a safety pin is attached to a weight, seated in a cavity in the base of the handle, and retained by a handle screw cap. In the other, the handle screw cap is not used; the safety pin terminates in a ring, which projects from the bottom of the handle, and is held in place by a safety cord passing through the handle.

If found with the safety pin ring or safety pin weight missing, the grenade is not safe for handling. This type of grenade is to be regarded as especially dangerous.

15. *Cylindrical Percussion Grenade with Wood Handle, 1917 Type.* (See figure 7.) This grenade is quite similar in outward appearance to the later variation of No. 1, the end of its handle being closed by a metal screw cap which retains in the handle cavity a weighted tube.

If found with the handle screw cap missing or weighted tube projecting, the grenade is not safe for handling. Unsafe percussion grenades are to be regarded as especially dangerous.

16. *Egg, Time Hand Grenade.* (See figure 8.) The body is of cast iron painted black, of about the same shape and size as a large egg. One end is flattened and is provided with a screw seat for the friction primer-time fuze tube, which is provided near its outer end with a gas escape hole drilled through its side and covered by a paper band. The loop of the friction pull cord or wire emerges from the end of the tube. If found with the friction pull cord loop in place, and no evidence of the burning through of the paper cover for gas escape hole, the grenade is live and should be handled with great care, since a pull on the friction loop will cause it to explode.

17. *Disc, Percussion Hand Grenade.* (See figure 9.) Two variations of this type are known; a small model, made of two convex discs of sheet iron crimped or riveted together, and a large model made of cast iron. The brief description below given applies to both models.

This type of grenade is provided at its edge with six radial tubes, five of which are closed by screw caps or plugs, and the sixth with a slip cap, retained by a cotter pin terminating in a ring; the tube opposite the one last mentioned contains the detonator, and is marked by the letter "S" stamped in tne top of the screw cap.

If found with cotter pin or slip cap missing, the grenade is

live and should be handled with great care. If any portion of the safety plunger projects from the slip cap tube, or if this tube is empty, the grenade should not be handled by anyone.

18. *Spherical Time Hand Grenade.* (See figure 10.) This grenade is a sphere of cast iron, three inches in diameter, serrated for fragmentation and provided with a friction tube, from the end of which projects a friction wire terminating in a ring. A gas escape hole is provided near the outer end of the friction tube, and covered with waterproof paper.

If found with friction wire in place, and paper cover for gas escape hole not burned through, the grenade should be handled with care, since a pull on the friction wire will cause an explosion.

19. *Spherical Percussion Hand Grenade.* (See figure 11.) This grenade consists of an iron sphere, serrated for fragmentation, into which is screwed a steel cylinder 35 mm. in diameter and 57 mm. in height, containing a percussion firing mechanism. A small wire passes through a hole drilled in the base of the cylinder and is attached to a cord, which is in turn fastened to a projector cup by means of which the grenade is thrown.

The projector cup is a steel cylinder 40 mm. in diameter and 100 mm. high, with a flaring mouth.

If found with safety wire broken, or if the grenade is found separate from the projector cup, it is live, and should not be handled by anyone.

GAS GRENADES.

20. Gas grenades are hand-propelled, and include two types: the non-explosive glass grenade, and the metal grenade, which requires a small charge of explosive in order to cause the rupture of the case.

21. *Glass, Gas Hand Grenade.* This grenade consists of a glass sphere 85 mm. in diameter, sometimes covered with a protective cord netting. It is non-explosive, but breaks up on impact.

Unbroken grenades of this type, while not actively dangerous, should be handled with care, precautions being taken against their being dropped.

22. *Metal Gas Grenade.* (See figure 12.) This grenade is composed of two hemispheres of sheet iron 100 mm. in diameter, painted gray, and provided with a friction tube-detonator screwed in the body.

This tube, when in place, projects about 24 mm. and carries a friction pull wire terminating in a ring.

Variations of this type may be distinguished by the following inscriptions to be found painted on the body:

Early type: "B" or "B. Stoff," or "Hoechst-a-M." in black.

Later type: A red band about the junction of the body, and the letter "B" painted on each side of the band. The inscription in red, "Gas C."

As a general rule this type of gas grenade should not be handled by any one except an officer familiar with the subject of gas.

Leaky gas grenades should be disposed of in the same manner as that prescribed for gas projectiles.

23. To disassemble safe hand grenades:

(a) Handle type: Unscrew handle and remove detonator.

(b) Egg or spherical types: Unscrew friction or detonator element.

(c) Disc types: Unscrew the "S" cap and then the remaining ones, except the slip cap held by the cotter pin; remove the detonator and friction pellets.

RIFLE GRENADES.

24. German rifle grenades may be divided into two general classes: Percussion Type with Tail Rod, and Time Fuze Type.

25. *1913 Model, Tail Rod Percussion Type.* (See figure 13.) This grenade is composed of a steel cylinder painted "field gray," 120 mm. long, 40 mm. in diameter, serrated for fragmentation and provided with a tail rod 450 mm. in length. A percussion fuze is screwed in a seat in the front of the body and two gas escape holes filled with wax are provided near the rear.

If this type is found with gas escape holes open it is live and should not be handled.

Even if the grenade appears to be safe (gas escape holes sealed with wax) it should be handled with great care, since dropping it may render it unsafe or cause its explosion.

26. *1913 Model, Tail Rod Percussion Type.* (See figure 13.) This is a variation of the original 1913 model. the difference being the provision of a safety pin, which passes through a stem at the lower end of the body, and one of the active elements inside.

If found with the safety pin missing, the grenade is live, and if handling is necessary, great care should be exercised. If, in addition, the gas escape holes are open, the grenade is dangerous for handling by anyone.

27. *1914 Model, Tail Rod Percussion Type.* (See figure 14.) This grenade is composed of a steel cylinder and tail rod of

about the same appearance and dimensions as the 1913 model. A cupped disc of iron is screwed over the lower end of the body and a milled headed fuze is screwed into the nose. When the fuze has not functioned, its milled head rests upon the end of the nose without interval.

If the grenade is found with milled head of fuze extending a short distance beyond the nose of the grenade body it is live, and not safe for handling by anyone.

28. "Safe" grenades of the Percussion Tail Rod type should be handled with great care, and if carried, the body and not the tail rod should be grasped, the fuze end being carried uppermost.

To disassemble "safe" grenades of this type, grasp the grenade as when carried and unscrew the fuze.

29. *1917 Model Time Rifle Grenade.* (See figure 15.) This grenade is composed of a steel cylinder 58 mm. in diameter, 75 mm. in length, with hemispherical ends, pierced with an axial channel for the passage of the rifle bullet. A fulminate cap is seated in the side of the upper portion of the bullet channel. The grenade is propelled by the gas of the rifle cartridge from a "tromblon" attached to the rifle barrel by a spring collar.

While this type of grenade is not actively dangerous, it should be handled with care, and no attempt should be made to introduce any hard object in the bullet channel.

30. *Stick Bomb.* (See figures 16 and 17.) This bomb is fired from a "Stick Bomb Thrower" or "Signal Thrower," and is of the self-propelled type.

It is composed of a cast iron cylinder two and one-half inches in diameter, five inches long and serrated for fragmentation. A steel tube five inches long, containing the propelling cartridge, is screwed into the lower end of the body; four vanes or wings are riveted to this tube near its outer end. A percussion fuze secured by a radial safety pin is screwed in a seat provided in the upper end of the body. The body, tube and vanes are painted "field gray."

If found with fuze in place, but safety pin missing, the bomb is live and should not be handled by anyone.

If both fuze and its safety pin are in place, or if the fuze is missing, the bomb may be handled, but with care.

To disassemble safe bombs of this type, unscrew the fuze.

31. *Signal and Message Rockets.* (See figures 18, 19 and 20.) These devices are composed of a cylinder of iron or zinc one and one-half inches in diameter and three and one-half inches long, with the front end closed by a conical iron cap painted a distinctive color. To the lower end of the cylinder is attached a

tube seven inches long, to which are riveted four vanes or wings.

These devices are non-explosive, except for the propelling cartridge seated in the forward portion of the tube, and are fired from a "stick bomb thrower" or "signal thrower."

Message rockets contain various colored light compositions, indicated by the painting on the conical closing cap, which, in the case of two specimens examined, was red and green, respectively.

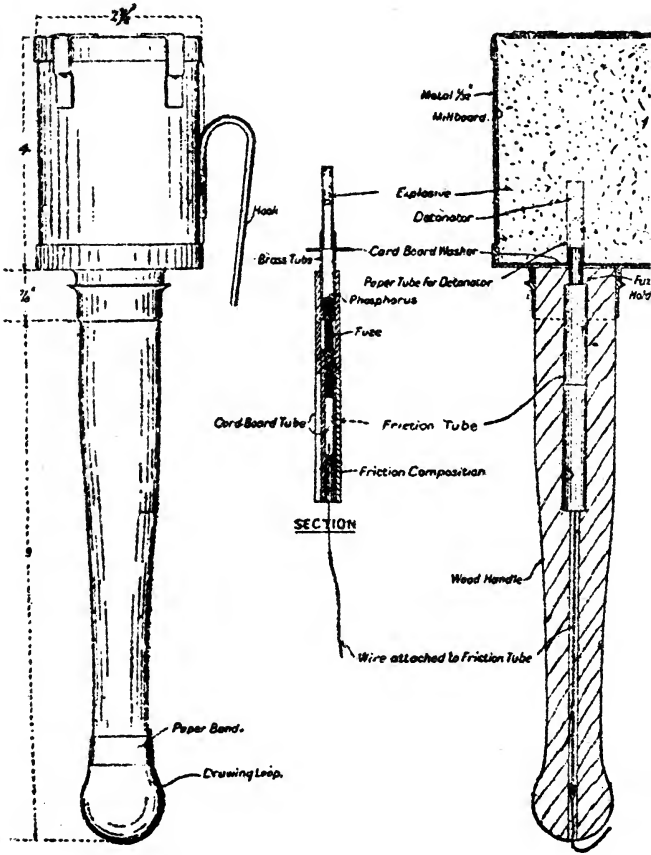
The message rocket, in addition to a light and smoke composition, contains in the forward portion of the body a small metal can intended for the reception of a written message. The color of the front closing cap of a specimen examined was yellow.

Rockets of the above types are not dangerous for handling or transportation.

CYLINDRICAL TIME HAND GRENADE
WITH WOOD HANDLE

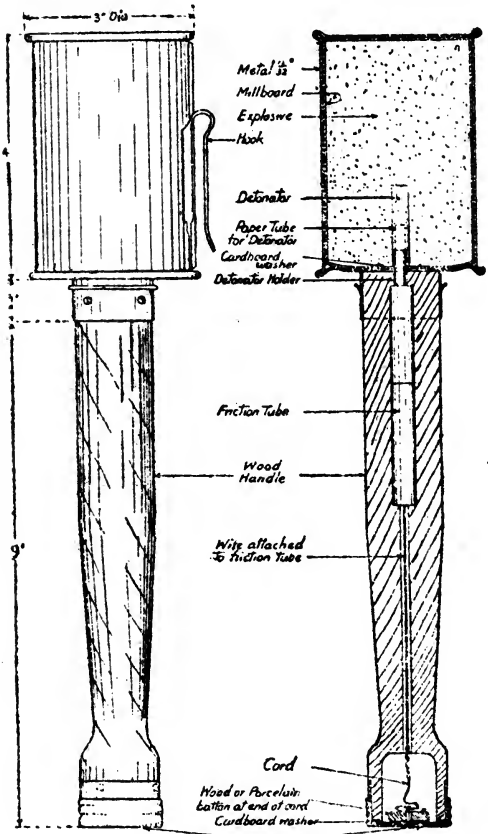
Fig. 1. OLD TYPE Fig. 2.

Section.



CYLINDRICAL TIME HAND GRENADE
WITH WOOD HANDLE
MODIFICATION.

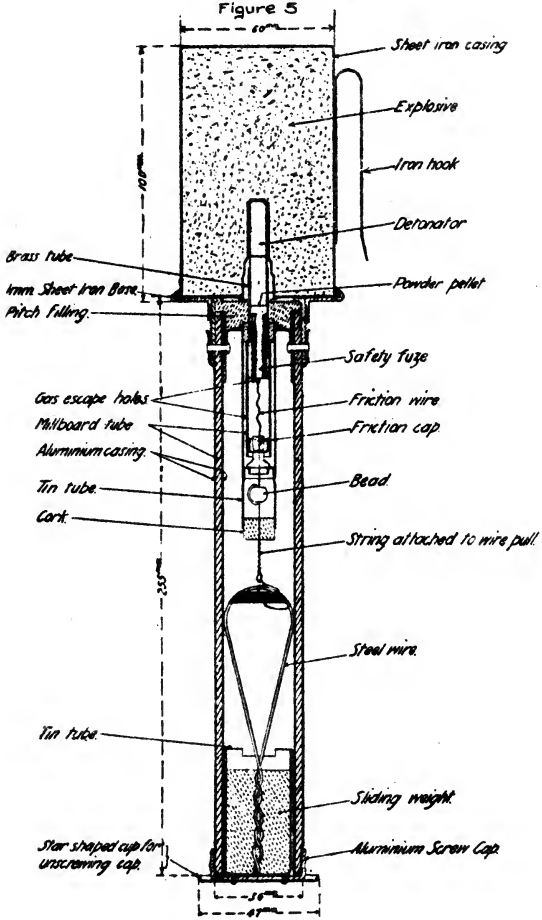
Figure 3. Figure 4.



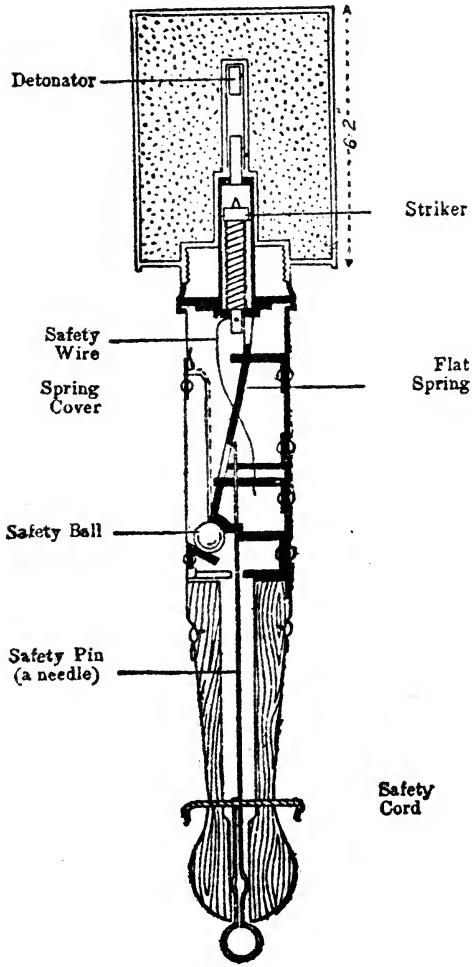
ELEVATION. SECTION.

CYLINDRICAL TIME HAND GRENADE
WITH METAL HANDLE

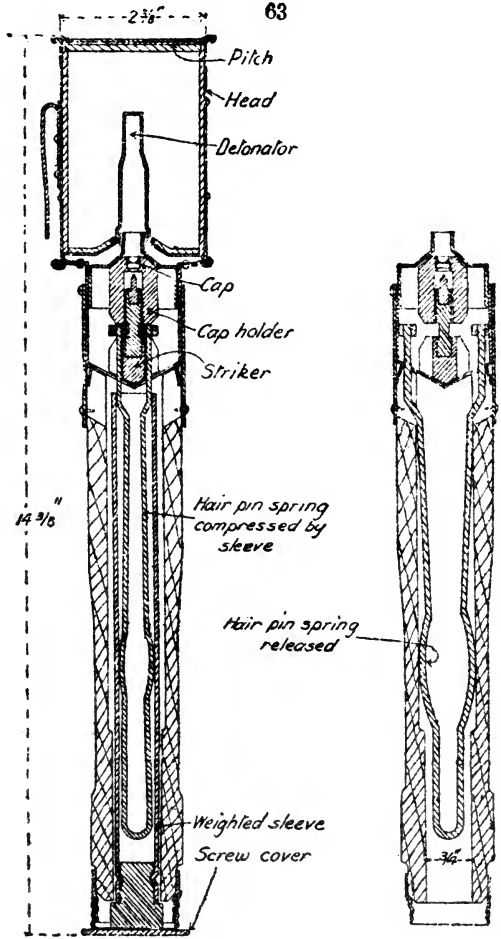
Figure 5



CYLINDRICAL PERCUSSION
HAND GRENADE
"WILHELM"
Figure 6.



CYLINDRICAL PERCUSSION HAND GRENADE - 1917 TYPE
Figure 7



SECTION.

SECTION SHOWING SLEEVE WITHDRAWN.

"EGG", TIME HAND GRENADE
Figure 8

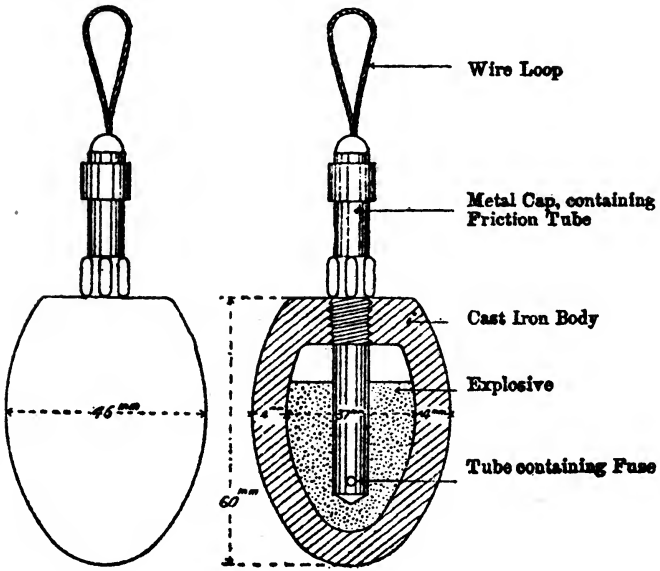
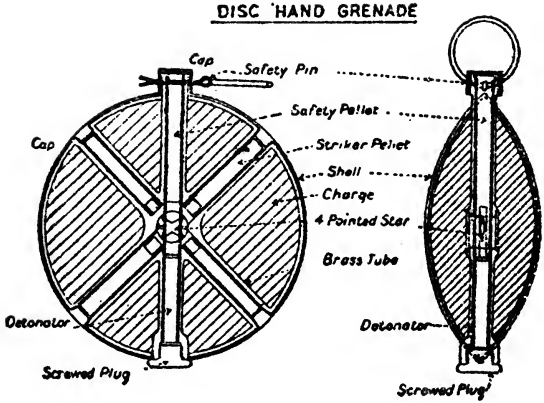


Figure 9

DISC HAND GRENADE



SPHERICAL TIME HAND GRENADE
Figure - 10.

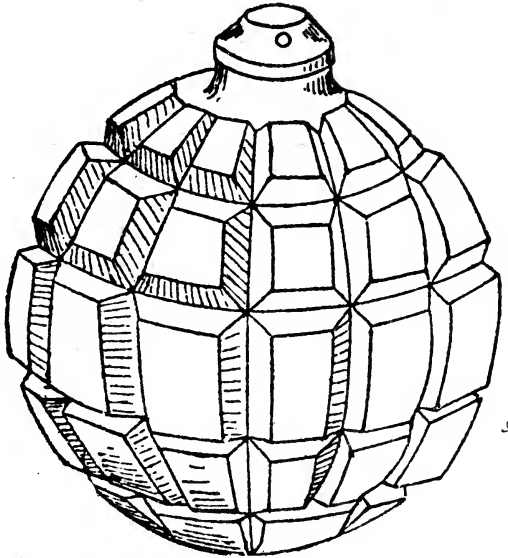
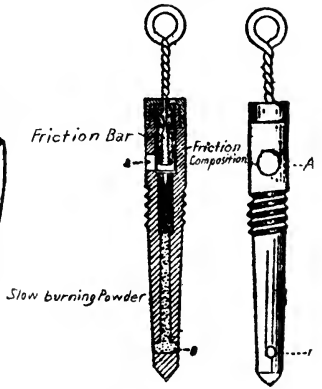
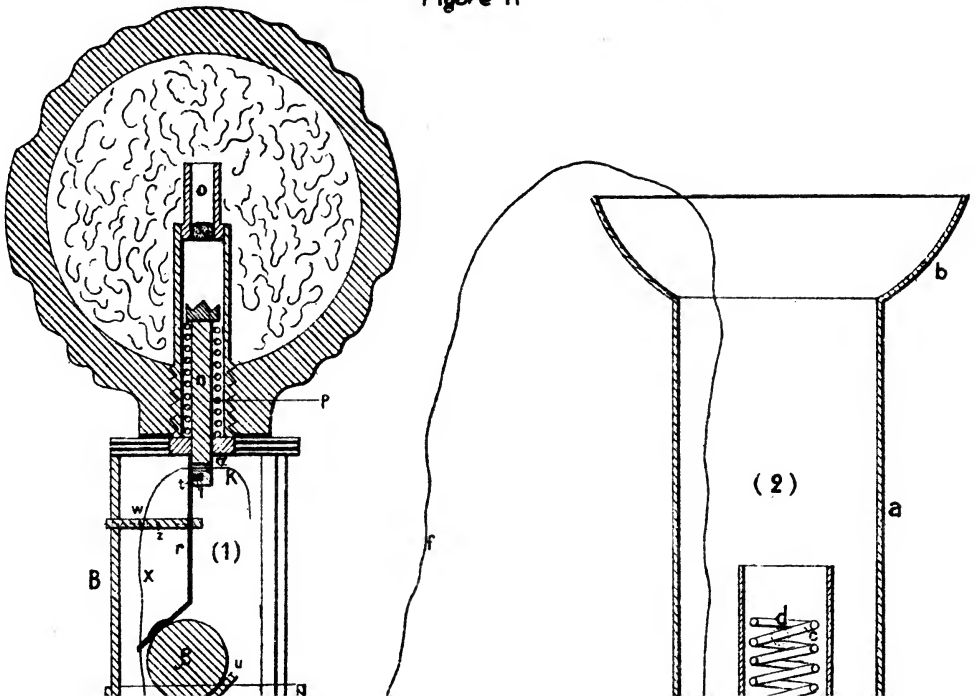


Fig. 2.

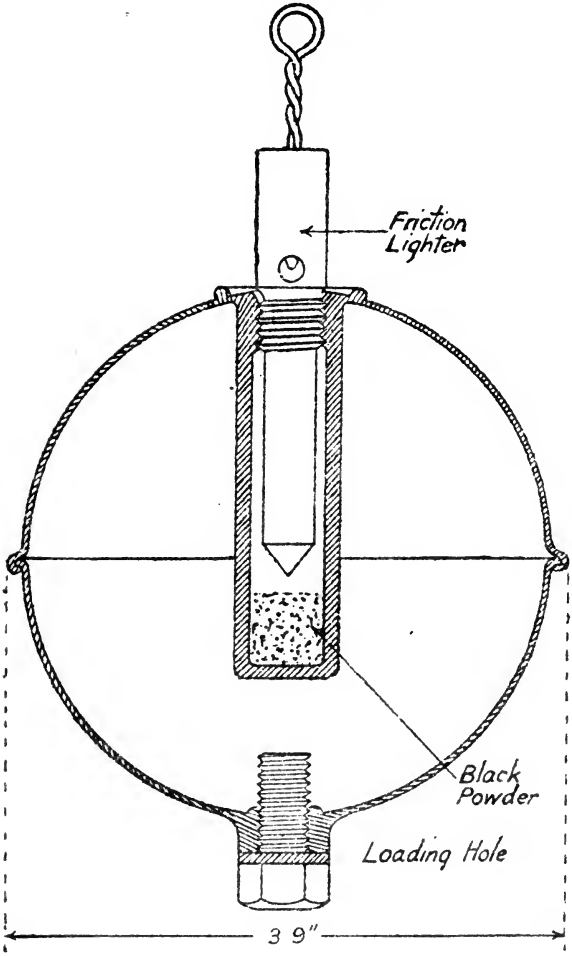


Section. Elevation.
Friction lighter.

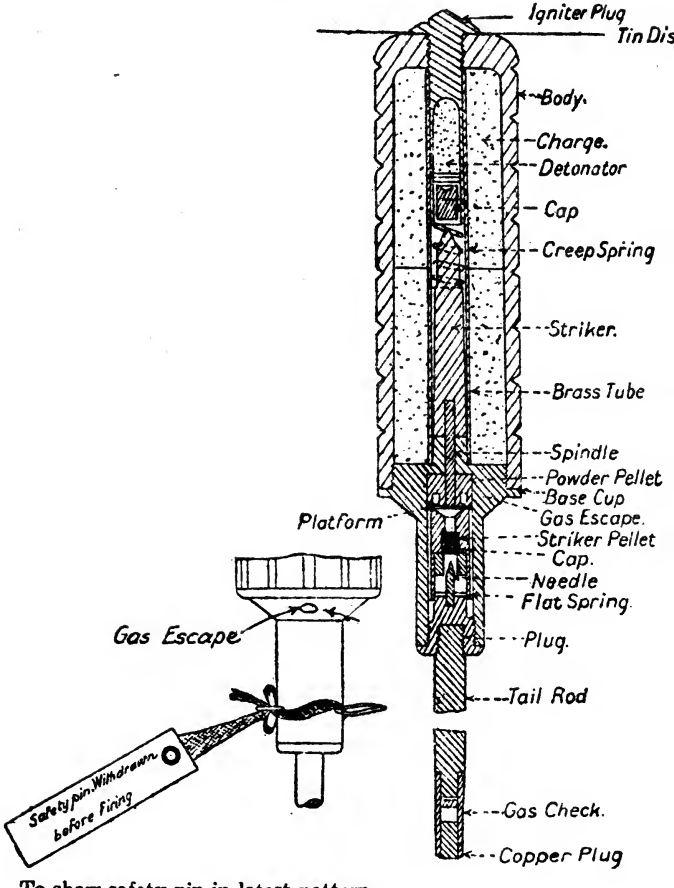
SPHERICAL PERCUSSION HAND GRENADE
Figure 11



METAL GAS HAND GRENADE
Figure 12

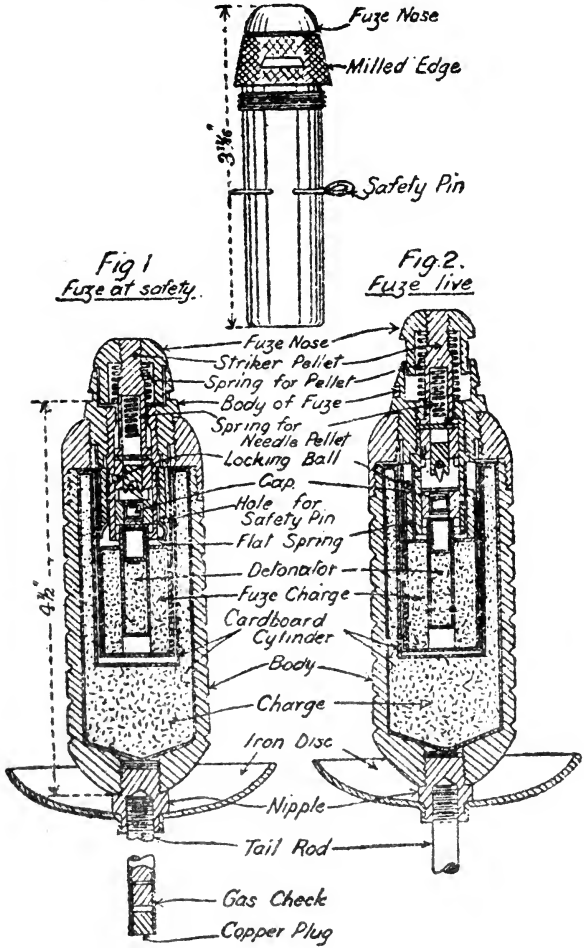


RIFLE GRENADE, MODEL 1913
Figure 18

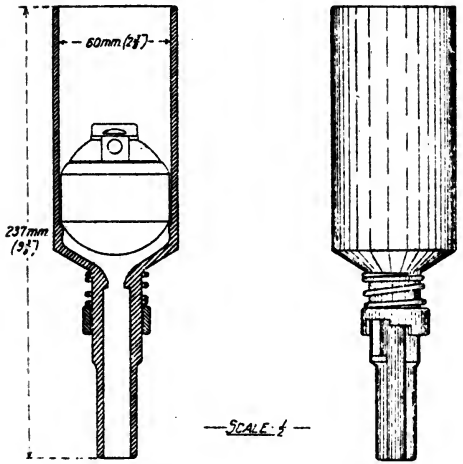


To show safety pin in latest pattern.

RIFLE GRENADE, MODEL 1914.
Figure 14

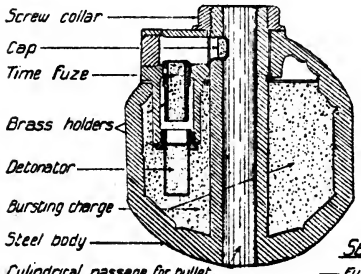


RIFLE GRENADE, MODEL 1917
Figure 15



SECTION
showing grenade in cup ready to fire

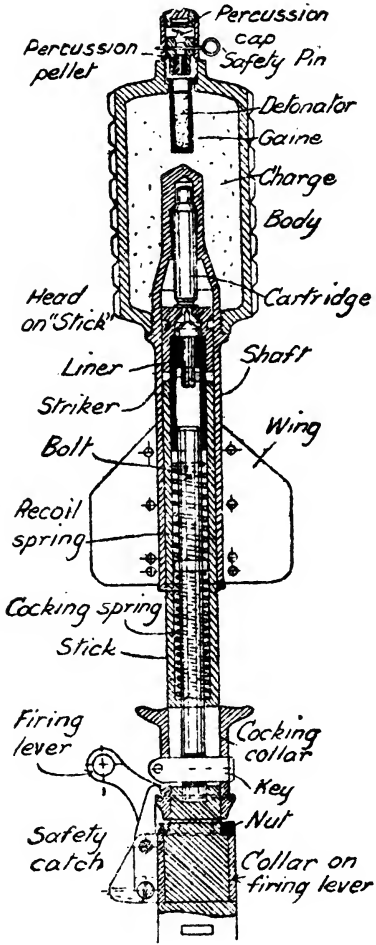
ELEVATION OF CUP



SECTION
FULL SIZE

Total weight— 15¼ oz
Weight of bursting charge— 1¼ oz

STICK BOMB
Figure-16



Section through "stick" of bomb-thrower showing bomb in position.

STICK BOMB THROWER
Figure 17.

Cocked, at safety and loaded.

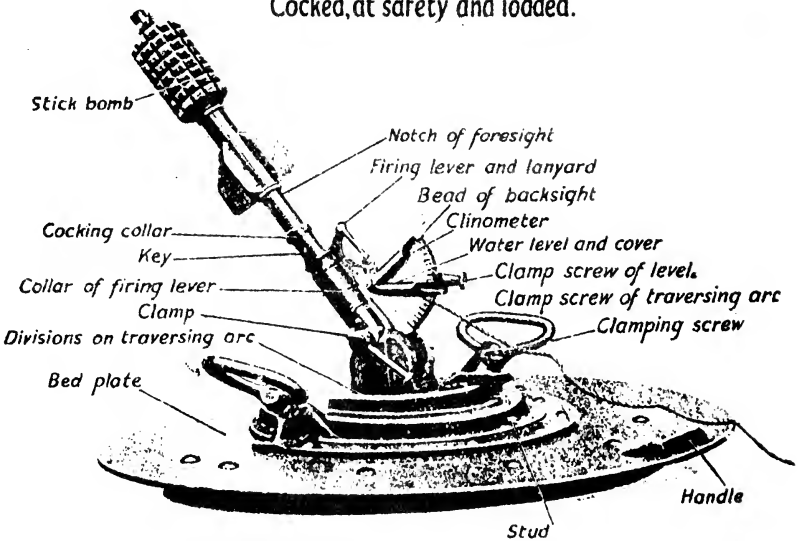
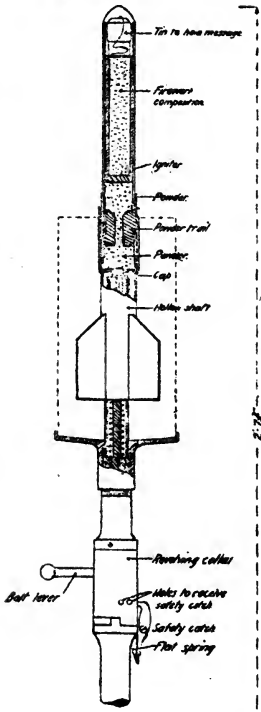


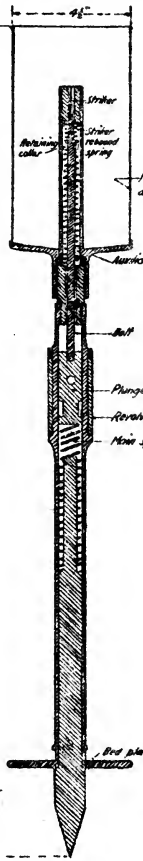
Figure - 18
MESSAGE ROCKET



SECTION

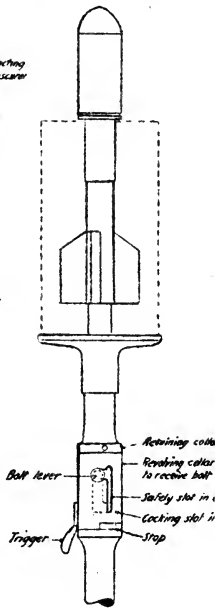
Showing the message rocket (Nachrichten-geschoss or "Meldewurfgranate") ready to fire.

Figure - 19
ROCKET THROWER



SECTION

Figure . 20
SIGNAL ROCKET



ELEVATION

Showing the signal rocket ("Granat ready to fire.

The Signal-Thrower is shown in the normal safe position, that is not cocked.