

RESTRICTED

Tank Destroyer School

PIONEER DEPARTMENT

Camp Hood, Texas



ENEMY
ANTIPERSONNEL MINES

NOVEMBER 1943

TDS 114

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FOREWORD

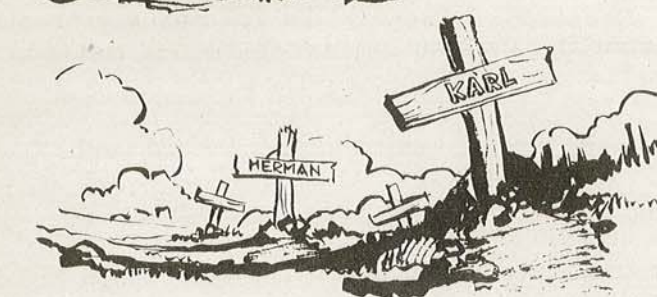
The purpose of this training bulletin is to aid tank destroyers to recognize the most common enemy antipersonnel mines and to present methods of neutralizing and disarming them.

"Neutralizing" a mine is to render it comparatively safe and inoperative by the installation of a safety device. In most cases an impediment placed in the path of the firing pin is all that is necessary to neutralize a mine. Care should be taken to make sure that the impediment does not fall out. Where a wire or a nail is used as a safety, it may be necessary to bind the nail or wire with tape to prevent it from falling out.

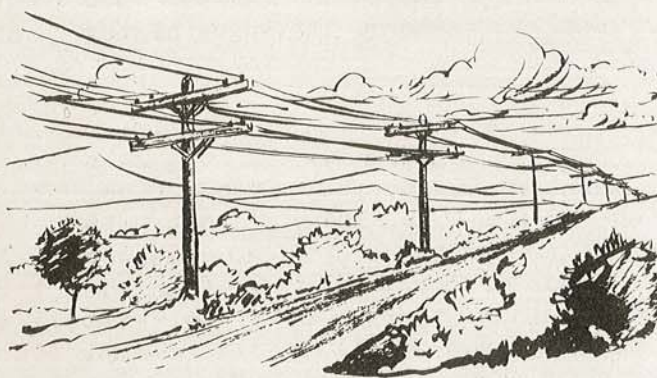
After a mine is neutralized it can be disarmed. Most antipersonnel mines contain a small charge which sets off the main charge and which is always imbedded in the body of the mine. This small charge is known as a detonator, which, along with a percussion cap, is located in the igniter. Disarming usually consists of removing the detonator or percussion cap from the igniter and packing it carefully in a separate box. No mines should be stacked or moved to rear areas until they have been disarmed, but they may be moved short distances if neutralized.



Do not be a souvenir hunter. You are the souvenir your folks and your country want after the war.



This grave may be the death of you. Stay away from it.



Antipersonnel mines are near telephone poles and wires.



Do not see how deep the crater is

IT MAY BE YOUR GRAVE.



The enemy does not leave valuable material behind. AP mines are attached to disabled vehicles.

INTRODUCTION

A number of U.S. soldiers who were wounded by Axis land mines and booby traps during the Tunisian campaign have made interesting and useful comments based on their experiences with such devices. The following extracts from their remarks should be regarded as supplementary to the material contained in this book.

COMMENTS BY U.S. WOUNDED

.....we had laid a good many British Mark V mines in the approach to FAID PASS. The Germans, realizing that we were about to lift our own minefield, sneaked up at night and booby-trapped the mines on the edges nearest them with anti-lifting devices.

.....when the Germans lay their "bouncing babies" ('S' mines*) in shell holes and craters, they generally set the mines for pressure. What the enemy hopes is that our boys will hastily jump into the holes to take cover, without even suspecting the presence of mines. It doesn't take our men very long to learn that the enemy is always trying to outguess us, that he's smart, and that caution pays."

.....I'd like to say something about "double bluffs," as we call them. You see something which looks like a trip wire, and which would ordinarily lead to a pull-igniter. The wire is taut. Also, it's out in full view--suspiciously so. If you cut the wire, a hammer sets off a charge of some kind--perhaps not a mine at all. It's just another instance of the enemy trying to outguess us.

* The German "Schutzmine" or "protective" mine; strictly antipersonnel. Not effective against armored vehicles.

.....you've probably heard about the German "butterfly bombs."* A shallow foxhole usually affords sufficient protection against butterfly bombs, but who digs a shallow foxhole any more when he has time to dig a deep one? That's one thing I've certainly learned--to dig deeper and feel safer.

.....an important point to remember about enemy methods is that they aren't cut-and-dried. You can't depend on the Axis always doing the same thing, day in and day out. The enemy goes in for variety to catch us off our guard.

.....if you see a sign saying ACHTUNG! MINEN! or "Attention! Mines!" that's one time when you want to believe in signs! We learned not to play the smart-aleck game of firing or throwing stones at objects in an area where there was a warning sign. This kind of tomfoolery sometimes disturbed delicate mines and booby trap mechanisms so that they were harder to detect and neutralize later. Also, there was an ever present danger of 'sympathetic detonation,' whereby one explosion would cause another--and of course you couldn't predict where.

.....I lost my right hand by picking up a German "egg" grenade that I saw lying on the ground, with its pin apparently in. Feeling confident that it was safe, I went right ahead and picked it up. It hadn't occurred to me that fine piano wire might lead from the other end of the grenade to a stake sunk into the ground directly underneath.

* Butterfly bombs are dropped in a container which holds 23 bombs and which is fuzed to open after falling a predetermined distance from a plane. Each butterfly bomb, in turn, is fitted with one of three types of fuzes; (1) A fuze designed to operate while the bomb is still in the air, or on impact; (2) a clockwise fuze which can be set to function at any time up to 30 minutes after the bomb becomes armed; (3) a highly sensitive anti-handling (booby trap) fuze which becomes armed on impact, but does not detonate until subsequently disturbed.

.....I was with a British squad in Tunisia when we came across a nice German Luger (semiautomatic pistol) lying on the ground, just waiting to be picked up. Our squad leader was very wary. He said, "It's probably booby-trapped. I want all you men to stand aside and watch carefully while I show you a 'safe' way of testing it." He tied a cord to the trigger guard, and carried the other end of the string over to a foxhole, which was about 15 or 20 feet away. "Now here's what I'm going to do," he said. "I'll crouch in the foxhole, and draw the cord so that the Luger will move and detonate any pull-igniter which may be attached to it."

The squad leader jumped into the foxhole, and instantly there was an explosion. The Germans, anticipating just what his line of reasoning would be, had mined the foxhole with a couple of bouncing babies, set for pressure and, incidentally hadn't even bothered to booby-trap the Luger at all.

GERMAN "S" MINE
Alias "Bouncing Babies"—"Bounding
Mine"—"Silent Soldier"

The German "S" mine is used only as an antipersonnel mine. It is cylindrical in shape, 5" high, and has a diameter of 4". It weighs about 10 lbs., containing 1 lb. of tolite and approximately 9 lbs. of metal. In the inner canister of the mine will be found 350 steel balls, although in some of the newer "S" mines these steel balls have been replaced by short lengths of 3/8" steel rods.

The "S" mine is buried in the ground, with the three-pronged antenna barely showing or partially covered. (When used to booby trap a foxhole the antenna will be as much as 3" under the surface. The weight of a soldier jumping in the foxhole will exert enough pressure to detonate the mine.) Very often there is more than one trip wire attached to the mine. The recommended length of the trip wires attached to this mine is 21 yards with supporting pegs every 7 yards.

When the trip (or trip wires) is hit, the igniter is actuated. A report is heard and about 4/5 seconds later, the mine springs into the air to a height of some 3 to 5 feet, depending upon the nature of the ground and the density of the camouflage. At this height the mine explodes, scattering the steel balls or short lengths of rods in all directions. The effective range of the "S" mine is 200 yards. Detonator tubes are made of cardboard instead of brass.

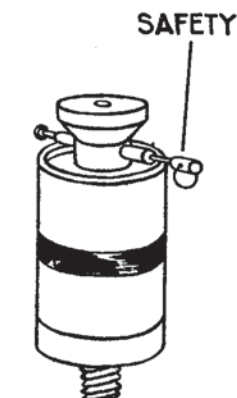
TYPES OF IGNITERS USED IN "S" MINES

Pressure Type Igniter D.Z. 35--Type B.

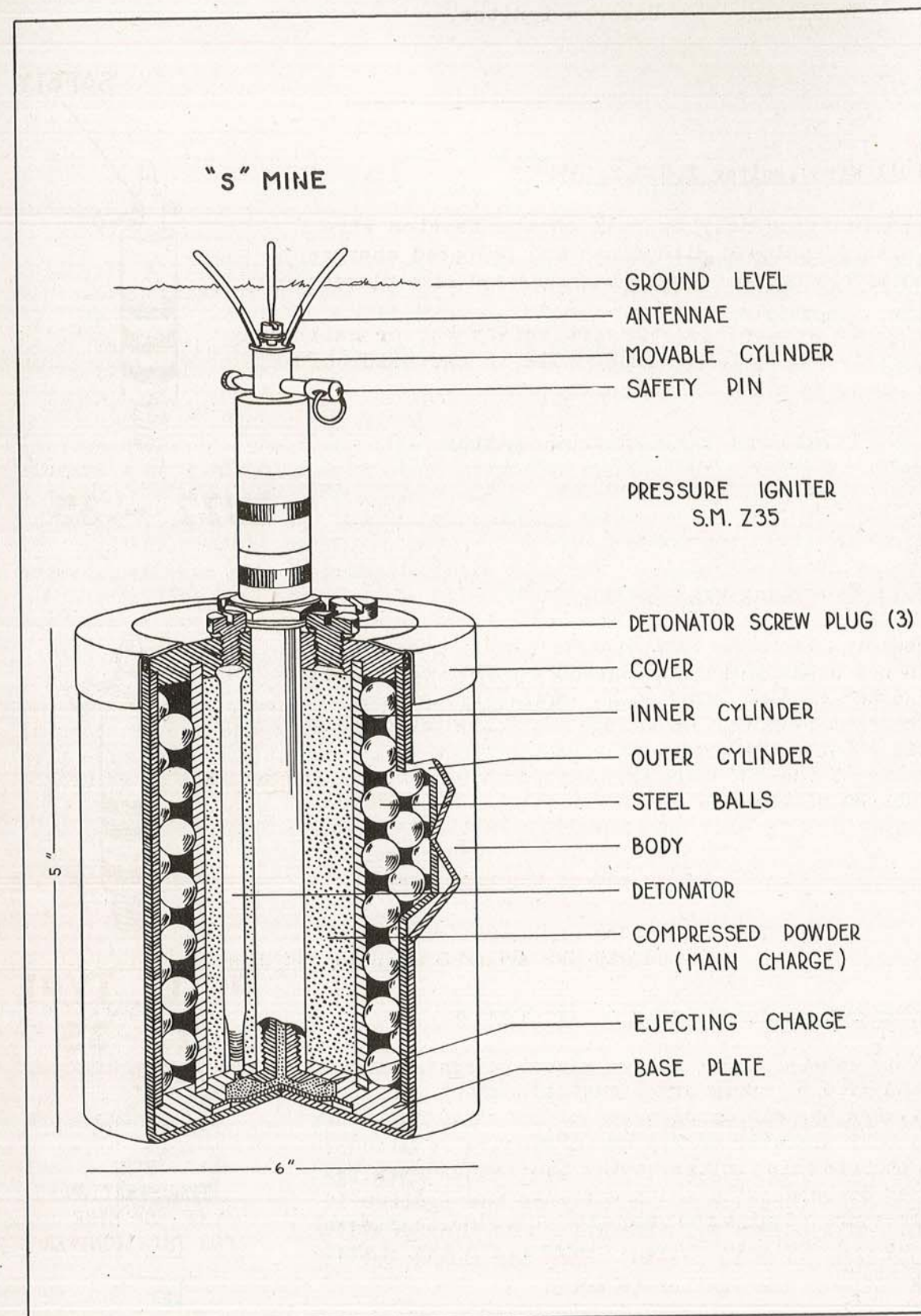
This igniter comes in two sizes, known as type A and Type B. Both are identical except for size. Type A has a body diameter of 3.2 cm. Type B has a body diameter of 2.5 cm. Pressure required to detonate this igniter varies because pressure head can be screwed up and down. The exact amount of pressure required to detonate this mine is unknown, but it is believed that a minimum of 5 lbs. is sufficient.

To neutralize: Push a nail into the safety bar hole.

To disarm: Unscrew igniter.



**PRESSURE
DZ - 35**



To disarm: Unscrew igniter.

Pull Wire Igniter Z.U.Z.Z. 35.

Can function only by pull on the tension wire. Usually employed with mines and prepared charges in barricades and street barriers and like places.

To neutralize: Insert safety bar or nail into hole in the head of igniter.

To disarm: Unscrew igniter.

SAFETY



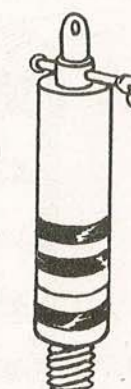
ZUZZ - 35

Pull Type Igniter Z.Z. 35.

Usually has a trip wire attached to it. Has a hole in the head for the passage of a safety bar. This igniter is also inserted in German Tellermines and prepared charges. A pull of only a few pounds will set off the mine.

To neutralize: Insert a safety bar or a nail in the hole in the head of the igniter. (Check the other end of the trip wire.)

To disarm: Unscrew the igniter, with safety bar or nail in place.



PULL TYPE
ZZ - 35

Y-Pressure Igniter S.M.I.Z. 35.

A pressure of about 15 lbs. will cause this igniter to function. The body of the igniter is made of aluminum and contains a hole through which the safety bar is passed. When the safety bar is withdrawn, the igniter is armed.

SEE
ILLUSTRATION
OF "S" MINE
FOR THIS IGNITER

To neutralize: Push a nail into the safety bar hole.

To disarm: Unscrew the igniter.

BE CAREFUL AND LIVE

Be suspicious of everything you see. Never cut a tense wire or yank a loose one. If you happen to kick a trip wire, yell "MINE" and hit the dirt immediately. Enemy AP mines are placed in minefields as a definite part of their defense and have been found attached to helmets, guns, canteens, and around telephone poles, along the shoulder of roads, attached to cattle fences and derelict trucks, around craters and road markers.

Always carry some 12-gauge wire and nails--they will come in handy.

Remember, only one man works on a mine; the others stay away.

Before removing a mine look around it for trip wires.

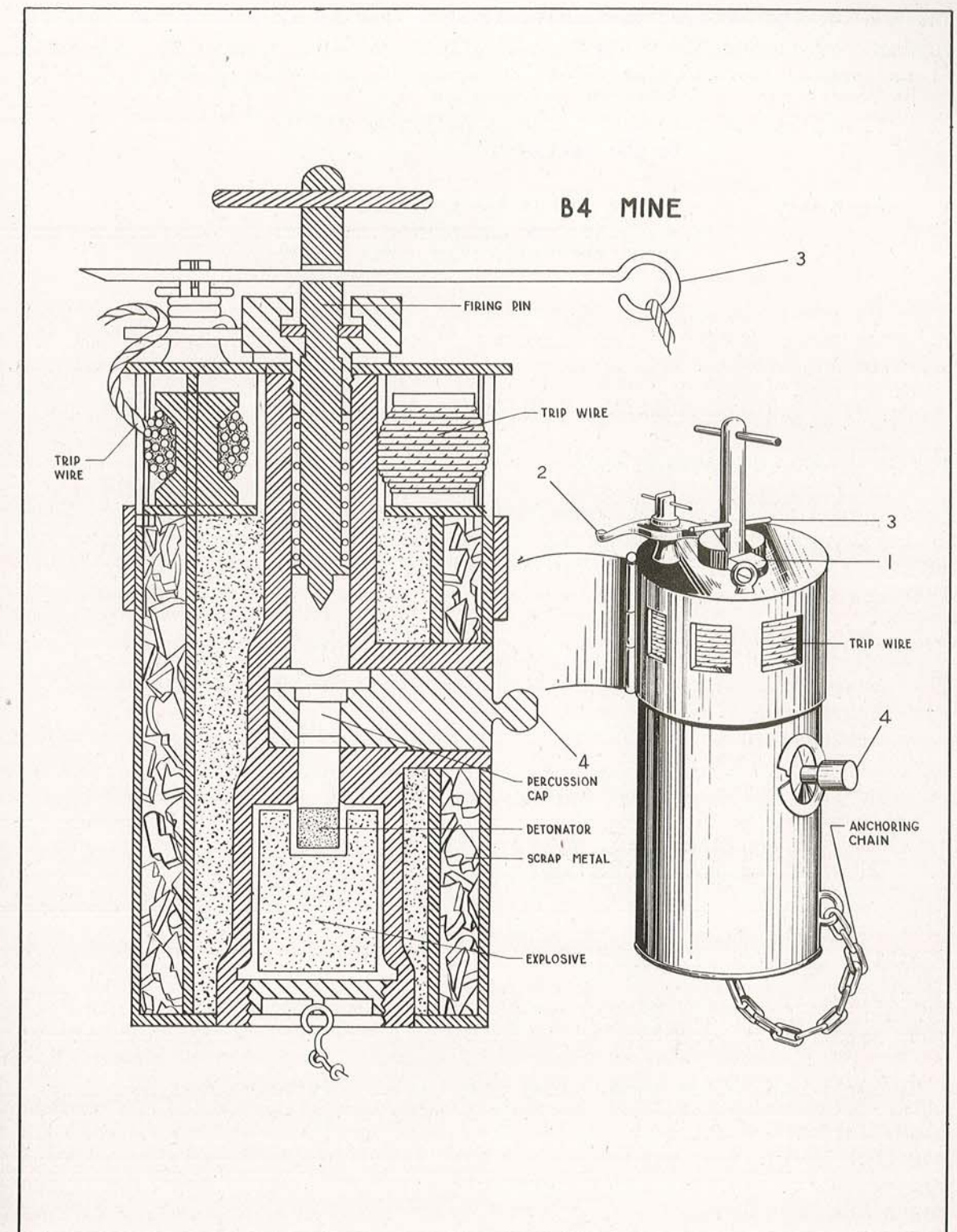
Take cover before you pull a mine and do not come out for about 10 seconds after the mine is pulled. There may be a delay fuze attached to it.

Never use force. If a mine or wire near it will not come undone gently by hand, leave it.

If you have to leave a mine unlifted, mark it very obviously.

B-4 ANTIPERSONNEL MINE--(ITALIAN)

The weight of the explosive in the B-4 mine is one quarter pound of TNT. The total weight of the mine is 3 pounds. The mine consists of two cylinders--one 3" in diameter and the outer cylinder 5" in diameter--one inside the other. The space between the walls is filled with scrap metal. The outer cylinder is flattened on one side where there are six sharp projections for attaching the mine to a tree or a post. The cylinders are held together at their common base, and by a cover at the top. The release system consists of a trip key (1) with a ring at one end to which the cords are attached. The other ends of the cords are stretched and fixed to posts or bushes. The tension of these cords is hardly perceptible. When the cords (or wires) are kicked, a hammer-like instrument (2) drives the trip key forward and so releases the striker.



The B-4 type of antipersonnel mine is used chiefly as a hindrance against moving targets and has considerable effect within a radius of 10 yards. It is usually found in wire obstacles spaced at intervals of about 5 yards.

To neutralize: Insert a wire or nail into the hole in the striker (3).

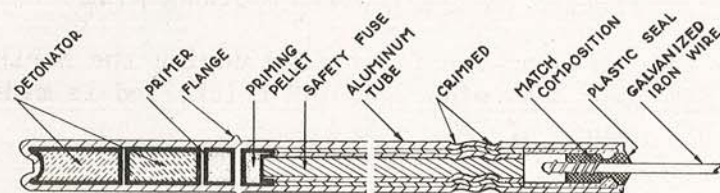
To disarm: Remove percussion cap holder (4) by screwing out and taking out cap. Then release the trip cords or wires.

TYPES OF IGNITERS USED IN B-4 ANTIPERSONNEL MINES

Friction Igniter, Miccia DA 40.

Is enclosed in an aluminum tube 3.7" long and 0.27" in diameter. A piece of galvanized pipe protrudes out of the end of the igniter. When this is pulled, the friction powder ignites and lights a 10-second delay fuze; then the detonator goes off.

Cannot be neutralized: There are no visible safeties attached to this igniter.



Friction Igniter, Miccia DA 60.

Similar to the Miccia DA 40, except that it is 4.45" long with a safety fuze delay of 15 seconds.

Cannot be neutralized: There are no visible safeties attached to this igniter.

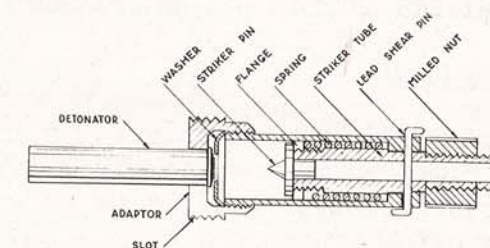
Time Delay Igniter.

This igniter is about 4" long. Contains a striker apparatus, a percussion cap, and detonator. The striker is held by a milled nut and 1/12" shear pin. When the milled nut is unscrewed, it is merely a question of time

before the shear pin holding the striker, fails. Then the striker is shot forward, where it hits a percussion cap, and then the detonator.

To neutralize: Grip the striker with the cutting edges of a pair of wire cutting pliers and wire the pliers' jaws into position.

To disarm: Unscrew the igniter from the charge not dislodging the pliers. Unscrew detonator and cap from igniter. Replace the milled nut, thus taking the strain off the lead shear pin.



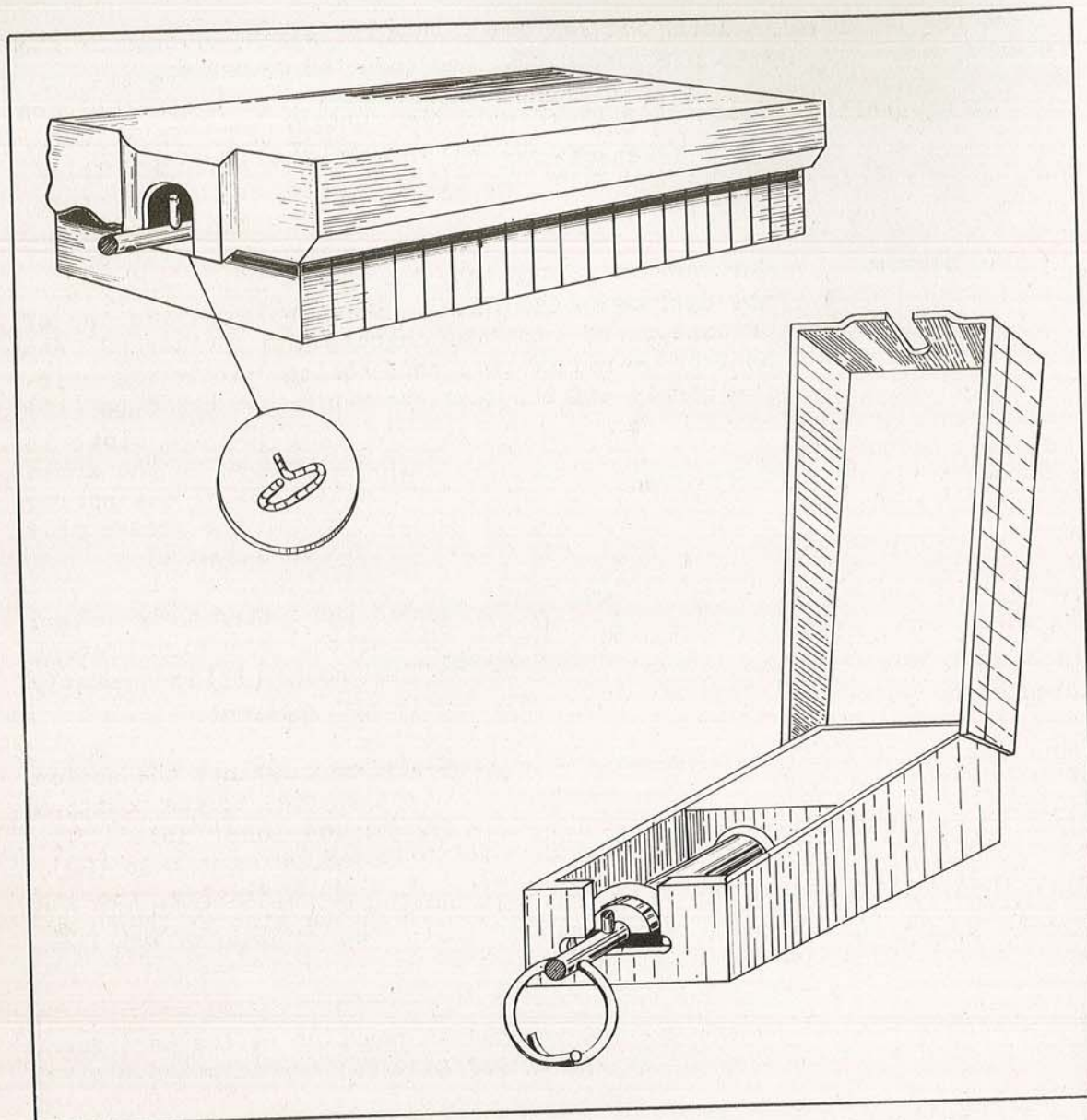
ITALIAN ANTIPERSONNEL PRESSURE MINE

This mine came into use for the first time during the North African campaign. It is 5 1/2" long, 2 1/2" wide, and 1 1/2" thick, and is made of bakelite. It contains 1-3/4 pounds of TNT.

The charge partly fills the box and is held in position by the partition. Around three sides of the charge are deeply grooved fragmentation plates.

The striker mechanism consists of a metal tube which contains the striker and the striker spring. The detonator has a flange at its open end which holds it in position in the striker tube, the flange being secured between the perforated plug and the screwed locking ring.

The mine is armed by first cocking the spring. This is done by pulling out the ring and inserting the actuating pin. The detonator is then inserted. The whole assembly is inserted into the box, with the detonator fitted into a recess in the explosive charge. The lid of the box is gently closed until it rests on the actuating pin. The mine is thus armed and is sensitive to a small pressure on the lid which causes the latter to push out the pin and release the striker.



To neutralize: Avoid all pressure on the lid of the mine. Lift the lid clear of the mine. Lift the lid clear of the actuating pin. Place a wire in the inner hole and lift out the whole striker assembly.

To disarm: Unscrew the locking ring and remove the detonator.

Note:--The striker assembly slips easily into the side of the mine in a recess cut out to receive it. A corresponding slot in the lid enables the mine to be completely closed when the striker is not closed.

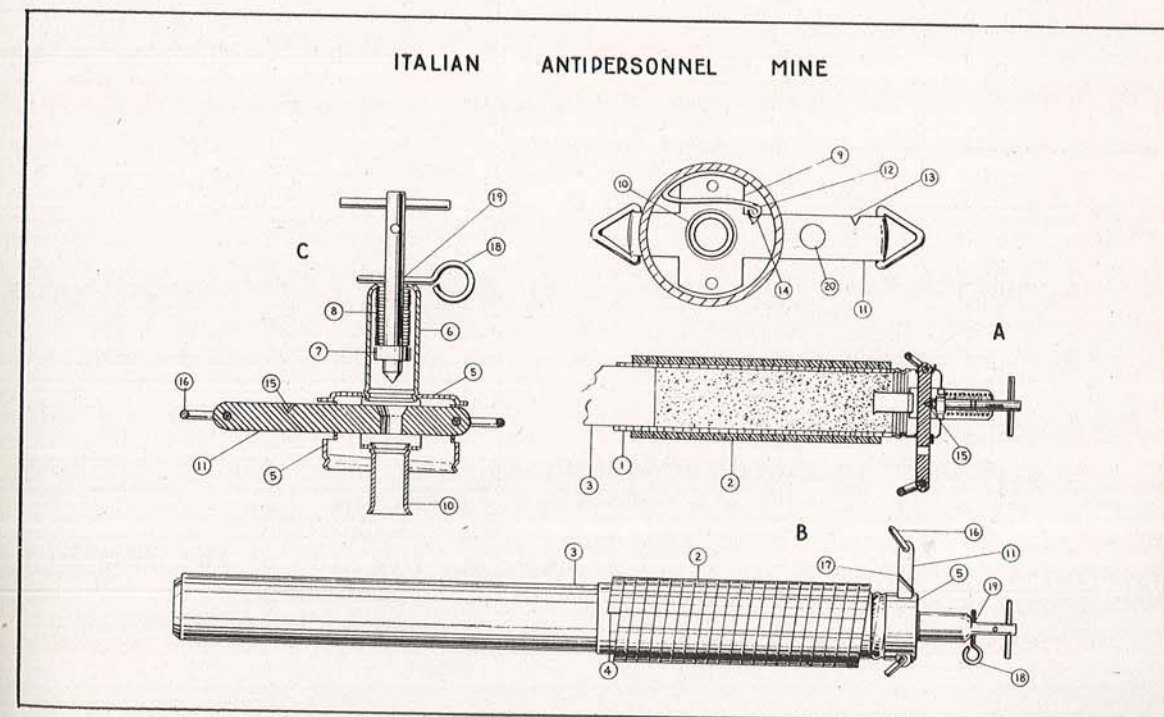
ITALIAN ANTIPERSONNEL MINE--"PICKET MINE"

The mine proper consists of a thin sheet-metal case 1/16" thick (1), on the outside of which is wound the strip-metal loading (2). This latter consists of 23½ turns of mild steel strip 0.21" in width and 0.15" thick. The use of such mine cases reduces the detecting range of mine detectors. The overall length with the striker cocked is 17.6". The charge--3.5 ounces of TNT.

The mine is closed by the screw-on lid (5). Into a hole in the top of the lid is inserted the housing (6), which contains the striker (7) and the striker spring (8). Riveted to the underside of the lid is the stirrup-shaped holder (9), into the center of which is pressed the tube (10) which houses the detonator. Passing through the lid, through slots in the side, is the aluminum cap holder (11), which is located in the armed and unarmed positions by the spring (12). The coiled end of the spring engages in the groove (13) in the firing position, and in the groove (14) in the unarmed position. Uncocked, the striker rests in a seat (15).

The loops (16) at the ends of the cap holder enable the latter to be pulled into the firing position by remote control, and at the same time prevent the holder from being pulled out completely. The groove (17) is probably intended to weaken the holder, though its use is not apparent.

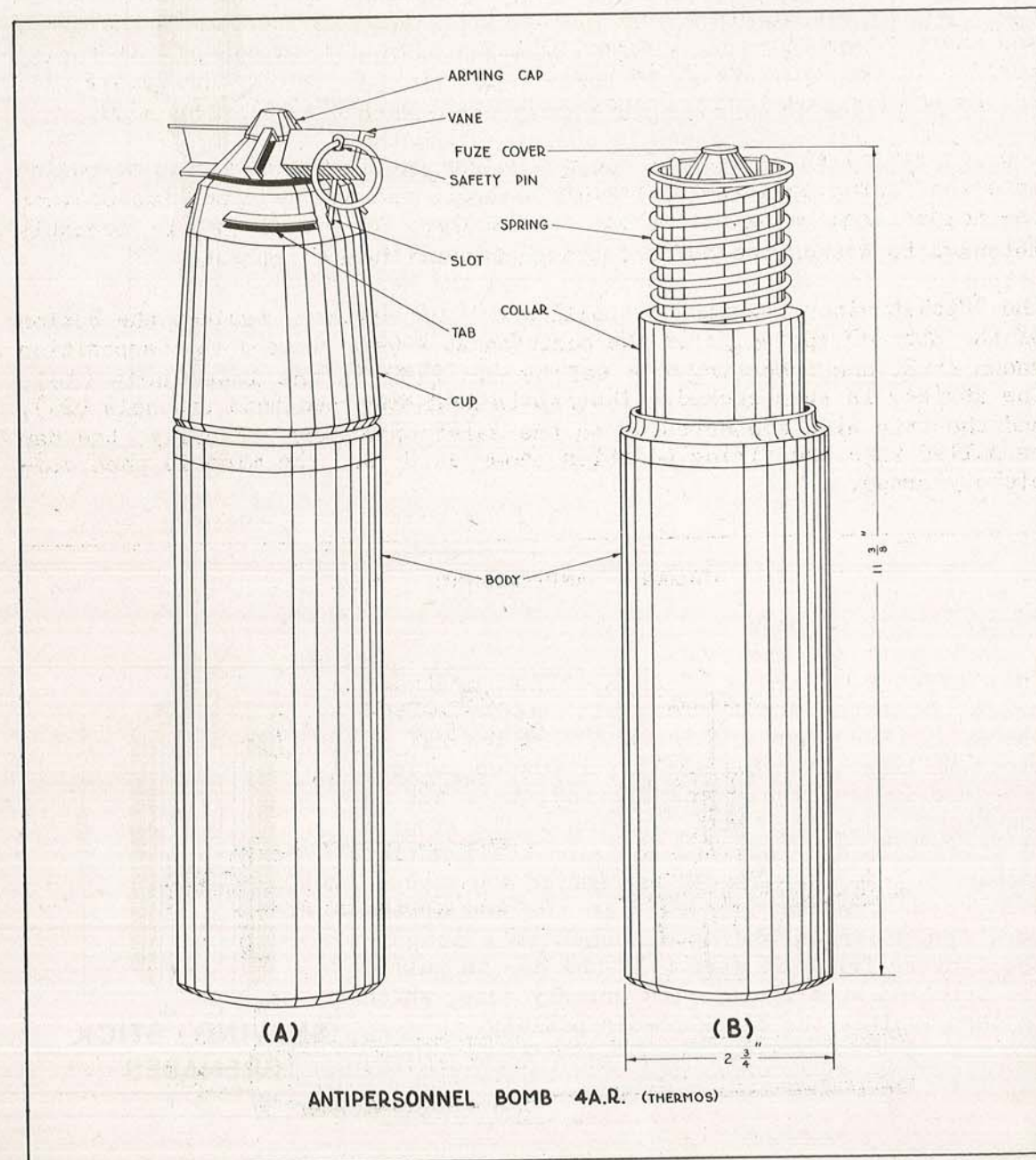
The "Picket Mine" is armed by pulling out the striker, against the action of the striker spring, from the position at A (see sketch) to the position shown at B, and inserting the safety pin (18) in the lower hole (19). The striker is then cocked. The cap is next inserted into the hole (20), and the trip wire connected up to the safety pin (18). Finally, the cap is pulled into the firing position shown at C, and the mine is then completely armed.



ANTIPERSONNEL BOMB AERIAL (THERMOS)

This bomb is designed to arm itself after it has come to rest on the ground. It becomes, therefore, an unexploded bomb and in some respects, an antipersonnel mine. It is provided with a "Manzolini fuze" which is both antihandling and antidisturbance and is extremely sensitive to a jerk or a jolt. It has been given the name "Thermos" because of its resemblance to a thermos bottle.

To disarm--This bomb cannot be disarmed but must be destroyed at the site. This can be done by small arms fire. A manual method of destroying the bomb is to place a loop loosely over the coils of the spring which, when jerked sufficiently, will detonate the bomb.



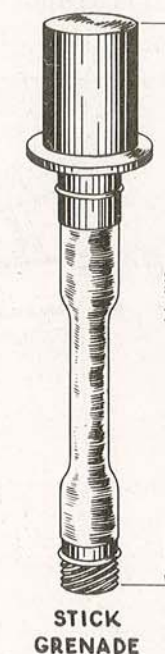
SECTION II

GRENADERS AND KNOWN IMPROVED ANTIPERSONNEL MINES

Stick Hand Grenade.

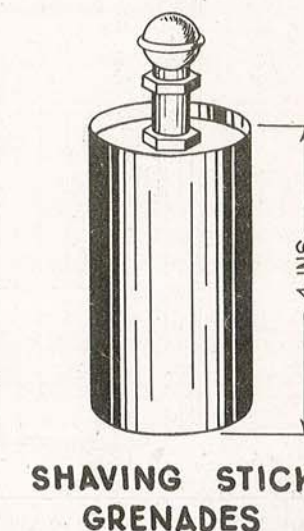
Including the stick this grenade is 14" long and weighs 1.1 lb. It contains 0.37 lbs. of explosive. The lethal radius is from 6 to 7 yards and radius of splinters is from 15 to 17 yards. At the top end of the stick is screwed the safety cap. When throwing the grenade the cap is unscrewed and the string inside the hollow stick is given a sharp pull. The fuze has a delay of 4-1/2 seconds.

Before action the grenade is carried without the detonator. The stick is unscrewed from the head and the detonator is slipped into the end of the fuze. This stick grenade is often used as a booby trap. It is only necessary to remove the retarding device, in which case pulling the cord gives an immediate ignition and detonation of the grenade.



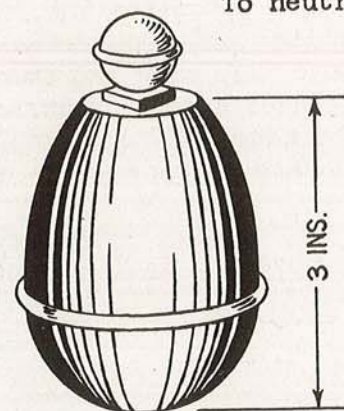
Shaving-stick Grenade.

This grenade is made of an aluminum cylinder 1-3/4" diameter and 4" long with walls .0254" thick, and contains a charge of 0.33 lbs. of HE block filling. There are 3 black powder pellets imbedded in the top of the filling, that act in the capacity of detonator. The top of the grenade is riveted to the body and contains the ignition mechanism. To fire the cap is removed and reveals a 2" cord attached to a disc in the top of the cap, the other end being attached to a loop in the igniter friction wire. If the cap is pulled the friction wire ignites the primary fuze, which in turn ignites the black powder pellets.



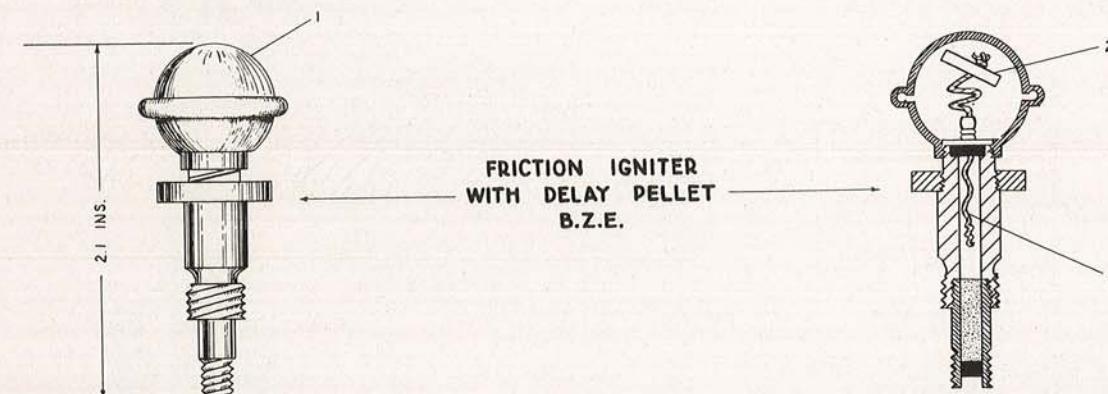
Egg Grenades.

The egg grenades are found with both red and blue igniter caps. The blue cap has a 4.5 second delay and the red is used as a booby trap with a one second delay.



EGG GRENADE

To neutralize: Unscrew head in careful manner, not exerting any pull on the short cord. Then cut the cord by means of scissors and replace the head with the cord inside. The "egg" grenade may be made further safe by unscrewing the igniter after neutralization. The igniter of the stick grenades cannot be removed easily because of the nut below the head of the container. However, the stick grenades are reasonably safe to handle after neutralization.



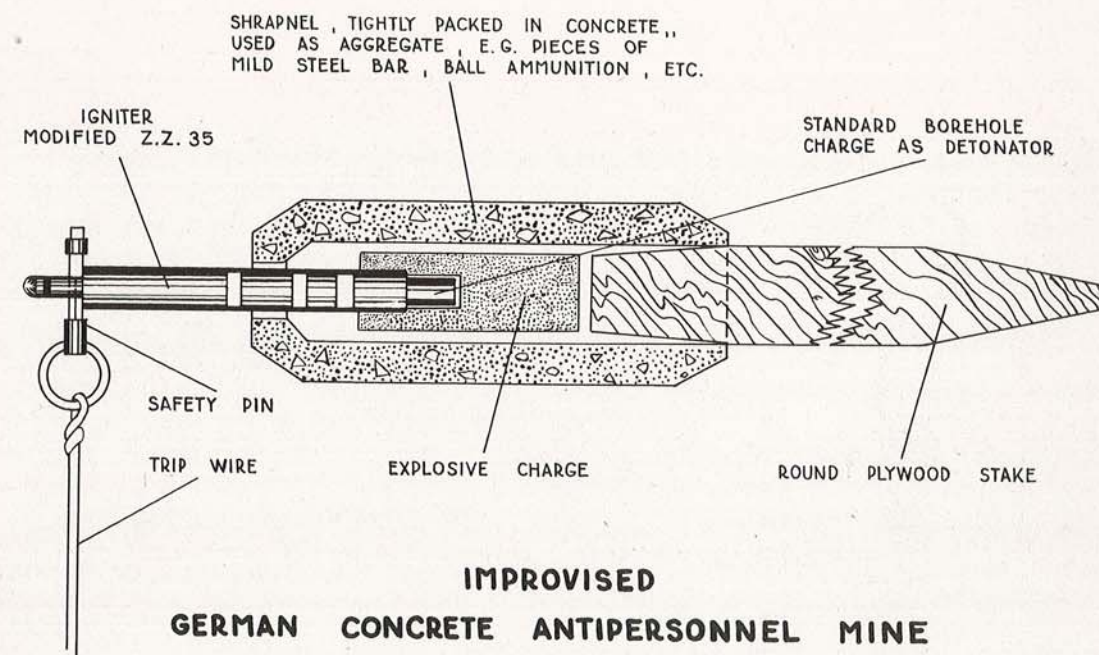
**FRICTION IGNITER
WITH DELAY PELLET
B.Z.E.**

The friction igniter with delay pellet B.Z.E. is similar in function to our fuze lighter. A small time fuze is put at the end of it. The round head is unscrewed, a small wire (string) is pulled causing friction at No. 3.

Improvised German Concrete Antipersonnel Mine.

This mine is composed of a concrete cylinder 3-1/2" in diameter and 6-1/2" long. The center is hollowed out to receive the charge and there is a hole in the top for the detonator. The mine is mounted on a 16" wooden picket which is driven in the ground. The charge is 100 gms. of a standard German explosive. This mine is armed by dropping a detonator into the hole and on top a defective German Z and ZZ 35 igniter which operates by removing the safety pin. This pin is connected to a trip wire and then the safety nut is removed. The firing of the mine causes a belt of shrapnel (pieces approximately 3/8" x 1/4"), which is imbedded in the concrete, to be thrown out all around the mine. The concrete is reduced to dust. Effective radius is approximately 30 yards.

To disarm: Cut the trip wire and remove the igniter and detonator.



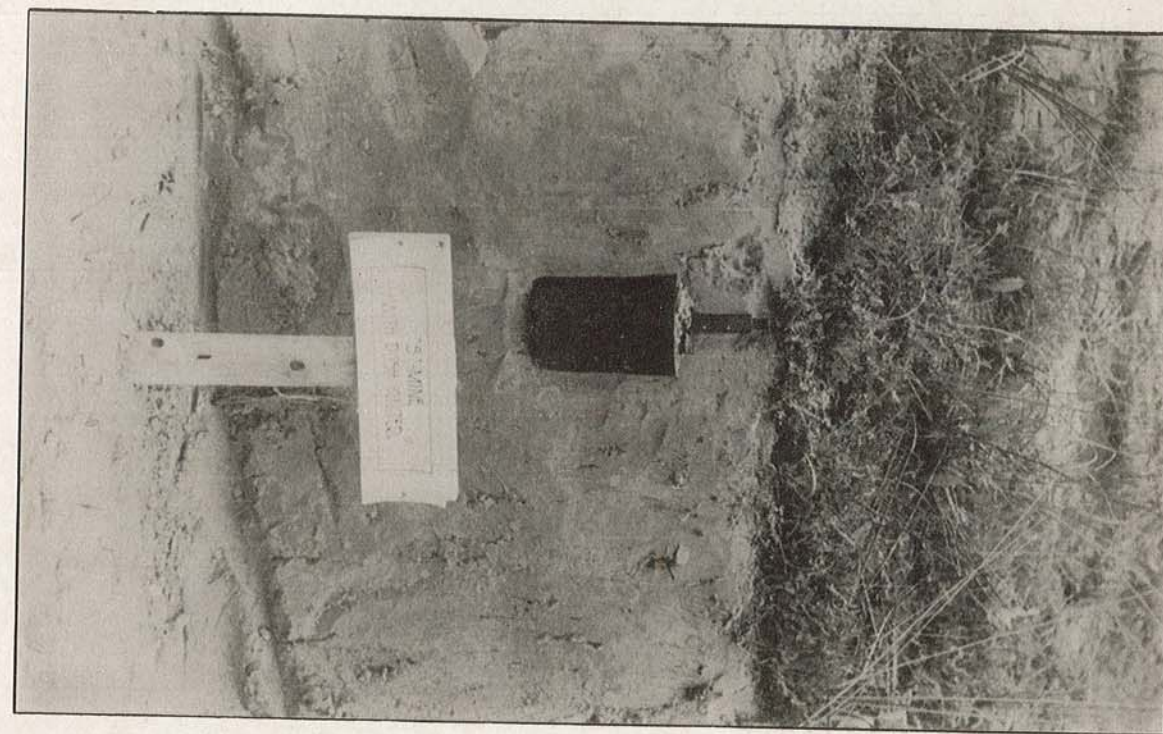
**IMPROVED
GERMAN CONCRETE ANTIPERSONNEL MINE**



"S" MINES WITH TRIP-WIRES.



PICKET - MINES WITH TRIP - WIRES.



B4 MINES WITH TRIP WIRES.

