IMPROVISED MUNITIONS HANDBOOK

INDEX

TM 31-210

Armor materials 160
Battery, short lasting 154,
two hour 157
Carbine, 7.62 mm 46
Cartridge, rifle 61
Cone charge, wine bottle 23
Dust explosions 12
Explosions, dust 12
Fertilizer explosive 14
Fire bottle, chemical 84,
mechanically initiated 88
Fuse cords, fast burning 118
slow burning 119
Gelled flame fuels, alcohol-lye 94
alcohol-soap 96
blood 102
egg 97
latex 99
lye 93
wax 101
Generator, automobile 152
bicycle 150
Grenade, nail 21
pipe 19
tin can land mine 25
Gun, match 55
Igniter, fuse, from book matches 108
from book matches 86
Igniter, delay, cigarette 110
from book matches 86
fuse, from book matches 108
no flash, fuse 114
Incendiary, acid delay 104
Initiator, electric bulb 106
for dust explosions 12
Launcher, fire bottle 73
grenade, 70, 77
recoilless 63
rope, grenade 148
shotgun, grenade 65
six mm mortar projectile 81
Mine, mortar, scrap 27
Nitric acid 9
Pistol, pipe, .45 cal. 52
9 mm 36
Plastic explosive filler 5
Potassium nitrate 6
Primer, reusable 50
Propellant, red or white powder 16
Recoilles launcher 63
Scale, improvised 146
Shaped charge, coke bottle 30
cylindrical cavity 33
Shotgun, 12 guage 40
Shotshell dispersion control 44
Switch, altimeter 141
clothespin 133
flexible plate 137
knife 145
metal ball 139
mousetrap 135
pull-loop 143
Time delay, can liquid 124
dried seed 116
grenade 122
long term 129
short term 126
watch 112

IMPROVISED MUNITIONS

FOR OFFICIAL USE ONLY

IMPROVISED MUNITIONS

HANDBOOK

TABLE OF CONTENTS

Section

special warfare work. This Manual includes methods for fabricating explosives, detonators, propellants, shaped charges, small arms, mortars, incendiaries, delays, switches, and similar items from indigenous materials.

2. Safety and Reliability

Each item was evaluated both theoretically and experimentally to assure safety and reliability. A large number of Items were discarded because of inherent hazards or unreliable performance. Safety warnings are prominently inserted in the procedures where they apply but it is emphasized that safety is a matter of attitude. It is a proven fact that men who are alert, who think out a situation, and who take correct precautions have fewer accidents than the careless and indifferent. It is important that work be planned and that instructions be followed to the letter; all work should be done in a neat and orderly manner. In the manufacture explosives, detonators, propellants and incendiaries, equipment must be kept clean and such energy concentrations as sparks,

I EXPLOSIVES AND PROPELLANTS (Including Igniters)

II MINES AND GRENADES

m SMALL ARMS WEAPONS AND AMMUNITION

IV MORTARS AND ROCKETS

V INCENDIARY DEVICES

VI FUSES, DETONATORS &t DELAY MECHANISMS

VII MISCELLANEOUS

FRANKFORD ARSENAL

Philadelphia Pennsylvania

friction, impact, hot objects, flame, chemical reactions, and excessive pressure should be avoided.

These items were found to be effective in most environments; however, samples should be made and tested remotely prior to actual use of assure proper performance. Chemical items should be used as soon as possible after preparation and kept free of moisture, dirt, and the above energy concentrations. Special care should be taken in any attempt at substitution or use of items for purposes other than that specified or intended. j- Section I

D No. i PLASTIC EXPLOSIVE FILLER

A plastic expletive filler can be n\adc from potassium chlorite and petroleum jelly. Thia explosive can be detonated with commercial #8 or any military blasting cap.

INTRODUCTION

1. Purpose and Scope

In Unconventional Warfare operations it may be impossible or unwise to use conventional military munitions as tools In the conduct of certain missions. It may be necessary instead to fabricate the required munitions from locally available or unassuming materials. The purpose of this Manual is to increase the potential of

Special Forces and guerrilla troops by describing in detail the manufacture of munitions from seemingly innocuous locally available materials.

Manufactured, precision devices almost always will be more effective, more reliable, and easier to use than improvised ones, but shelf items will just not be available for certain operations for security or logistical reasons. Therefore the operator will have to rely on materials he can buy in a drug or paint store, find in a junk pile, or scrounge from military stocks. Also, many of the ingredients and materials used in fabricating homemade items are so commonplace or innocuous they can be carried without arousing suspicion. The completed item itself often is more easily concealed or camouflaged. In addition, the field expedient item can be tailored for the intended target, thereby providing an advantage over the standard item in flexibility and versatility.

The Manual contains simple explanations and illustrations to permit construction of the items by personnel not normally familiar with making and handling munitions. These items were conceived in-house or, ob-< talned from other publications or persounel engaged in munitions or

MATERIAL REQUIRED

Potassium chlorate

Petroleum jelly (Vaseline)

Piece of round stick

"s

Wide bowl or other container for mixing ingredients.

PROCEDURE

HOW USED

Medicine M&nufacture of mate he

Medicine Lubricant

I. Spread potassium chlorate crystals thinly on a hard surface; Roll the round stick over crystal* to crush into a very fine powder until it looks like face powder or wheat flour.

2. Place 9 parte powdered potassium chlorate and 1 part petroleum jelly in a wide bowl or similar container. Mix ingredients with hands (knead) until a uniform paate is obtained.

Store explosive in a waterproof container until Veady to use,

POOR MAN'S JAMES BOND Vol, 2

284

IMPROVISED MUNITIONS

Section I

6 No, 2

POTASSIUM NITRATE Potassium nitrate (saltpeter) can be extracted from many natural sources and can be used to make nitric acid, black powder and many pyrotechnics. The yield ranges from . 1 to 10% by weight, depending on the fertility of the soil.

3. Place dirt in bucket,

MATERIALS

Nitrate bearing earth or other

material, about 3-1/2 gallons

(13-1/2 liters)

Fine wood ashes, about 1/2 cup (1/8 liter)

SOURCE

Soil containing old decayed

vegetable or animal

matter Old cellars and/or farm

dirt floors Earth from old burial

grounds Decayed stone or mortar

building foundations Totally burned whitish wood

ash powder Totally burned paper (black)

Bucket or similar container, about 5 gallons <19 liters) in volume

(Plastic, metal, or wood) 2 pieces of finely woven cloth, each

slightly larger than bottom of

bucket Shallow pan or dish, at least as

large as bottom of bucket Shallow heat resistant container

(ceramic, metal, etc.) Water - 1-3/4 gallons (6-3/4 liters) Awl, knife, screwdriver, or other

hole producing instrument Alcohol about 1 gallon (4 liters)

(whiskey, rubbing alcohol, etc.) Heat source (fire, electric heater, etc.) Paper

Tape

NOTE: Only the ratios of the amounts of ingredients are important. Thus, for twice as much potassium nitrate, double quantities used.

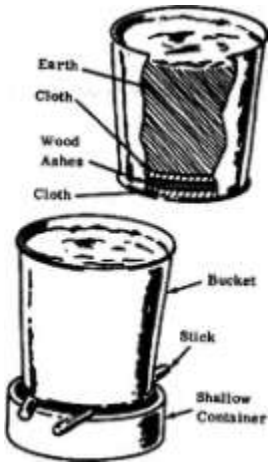
7

PROCEDURE :

1. Punch holes in bottom of bucket. Spread one piece of cloth over holes inside of bucket.

4. Place bucket over shallow container. Bucket may be supported on sticks if necessary.

8



Bucket

Shallow Container

Cloth

5. Boil water and pour it over earth in bucket a little at a time Allow water to run through holes in bucket into shallow container Be sure water goes through all of the earth. Allow drained liquid to cool and settle for 1 to 2 hours.

NOTE: Do not pour all of the water at once, since this may cause stoppage.

6. Carefully drain off liquid into heat resistant container. Discard any sludge remaining in bottom of the shallow container.

Improvised Strainer

7, Boil mixture over hot

fire for at least 2 hours.

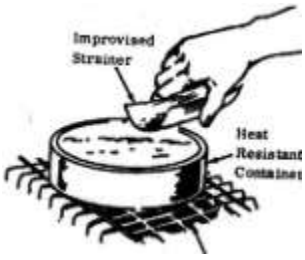
Small grains of salt will

begin to appear in the solution. Scoop these out as

they form, using any type

of improvised strainer

(paper, etc.).



Heat

Resistant

Container

Heat Source

Bottom of bucket

2. Place wood ashes on cloth and spread to make a layer about the thickness of the cloth. Place second piece of cloth on top of ashes.

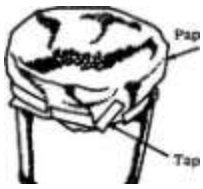
Cloth

Wood Ashes

Cloth

8. When liquid has boiled down to approximately half its original volume, remove from fire and let sit. After half an hour add an equal volume of alcohol. When mixture is poured through paper, small white crystals will collect on top of it.

Paper



Tape

that appear (Sten 7V nn.it- tw ! , Remove any salt crystals

pieced »s: p ^™ii~T;: n *zzT mter made ° f —«

to dryness. 8 y heat ** con centrated solution

n^tratr^? 8 ^ 8 " ^ ******* *"* aIlW to **• The potassium nitrate crystals are now ready for use.

POOR MAN f S JAMES BOND Vol. 2

285

IMPROVISED MUNITIONS

Section!

9 No. 4 NITRIC ACID

Nitric acid is used in the preparation of many explosives, incendiary mixtures, and acidtlelay timers. It may be prepared by distilling a mixture of potassium nitrate and concentrated sulfuric acid.
MATERIAL REQUIRED SOURCES:

Drug Store

Improvised (Section I. No. 2) Motor vehicle batteries Industrial plants

Potassium nitrate (2 parts by

volume) Concentrated sulfuric acid (1 part

by volumel 2 bottles or ceramic Jugs (narrow

necks are preferable) Pot or trying pan

Heat source (wood, coal, or charcoal) Tape (paper, electrical, masking,

etc. but not cellophane) Paper or rags

IMPORTANT: If sulfuric acid is obtained from a motor vehicle battery, concentrate it by boiling it until white fumes appear. DO

NOT INHALE FUMES.

XOTE: The amount of nitric acid produced is the same as the amount of potaaaium nitrate. Thus, for 2 tablespoonsful of nitric acid, use 2 tableapoonaful of potassium nitrate and 1 tablespoonsful of concentrated sulfuric acid.

PROCEDURE:

1. Place dry potassium nitrate in bottle or jug. Add sulfuric acid. Do not fill bottle more than 1/4 full. Mix until paste Is formed.

Bottle or

Paste of Potassium Nitrate and Concentrated Sulfuric Add

CAUTION: Sulfuric acid will burn skin and destroy clothing. If any is spilled, wash it away with s large quantity of water. Fumes are also dangerous and should not be inhaled.

10

2. Wrap paper or rags around necks of 2 bottles. Securely tape necks of bottles together. Be sure bottles are flush against each other and that there are no air spaces.

Paper

Necks "I Untiles

Flush Against Each Other

3. Support bottles on rocks or cans so thai empty buttle is sligh tly lower than bottle containing paste so that nitric acid that is formed in receiving bottle will not run into other bottle.

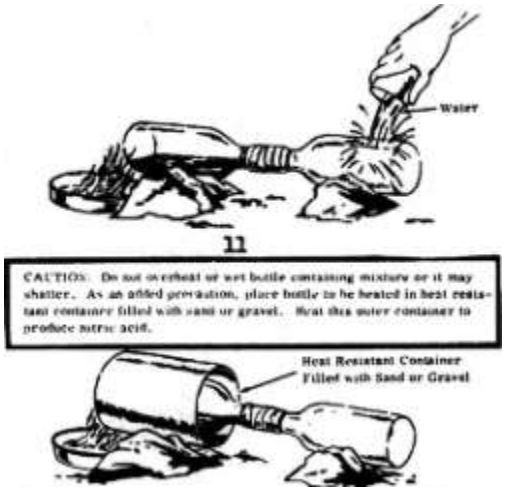
Tape Seal

Receiving Bottle

Rocks or Can Supports

4. Build fire in pot or frying pan.

5. Gently heat bottle containing mixture by moving fire in and out. As red fumes begin to appear periodically pour cool water over empty receiving bottle. Nitric acid will begin to form in the receiving bottle.



i>. Continue the above process until no more red fumes are formed. If the nitric acid formed in the receiving bottle is not clear {cloudy} pour it into cleaned bottle and repeat Steps 2-6.

CAUTION: Nitric acid will burn skin and destroy clothing. If any is spilled, wash it away with a large quantity of water. Fumes are also

dangerous and should not be inhaled.

Nitric acid should be kept away from all combustible* and should be kept

in a sealed ceramic or.glass container.

Section I

12 No. 5

INITIATOR FOR DUST EXPLOSIONS

An initiator which will initiate common material to produce dust explosions can be rapidly and easily constructed. This type of charge is ideal for the destruction of enclosed areas such as rooms or buildings

MATERIAL REQUIRED :

A flat can, 3 in. (8 cm) diameter and 1-1/2 in. (3-3/4 cm) high. A

6-1/2 ounce Tuna can serves the purpose quite well. Blasting cap Explosive

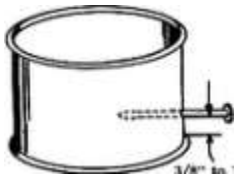
Aluminum (may be wire, cut sheet, flattened can or powder Large nail, 4 in. (10 cm) long Wooden rod - 1/4 in. (6 mm) diameter Flour, gasoline and powder or chipped aluminum

NOTE: Plastic explosives (Comp. C-4, etc.) produce better explosions than cast explosives (Comp. B, etc.).

PROCEDURE :

1. Using the nail, press a hole through the side of the Tuna can 3/8 to 1/2 inch (1 to 1-1/2 cm) from the bottom. Using a rotating and lever action, enlarge the hole until it will accommodate the blasting cap. ^ —_ —- ^

3/8 to 1/ 2'



2. Place the wooden rod in the hole and position the end of the rod at the center of the can.

3. Press explosive into the can, being sure to surround the rod, until it is 3/4 inch (2 cm) from top

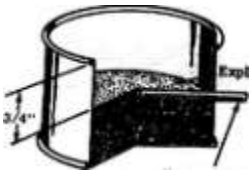
of the can. Carefully remove the wooden rod.

4. Place the aluminum metal on top of the explosive.

5. Just before use, insert the blasting cap into the cavity made by the rod. The initiator is now ready for use.

Cardboard Disk Insert For Handling Purposes

NOTE: If it is desired to carry the initiator some distance, cardboard may be pressed on top of the aluminum to insure against loss of material.



Section I 111 No. C

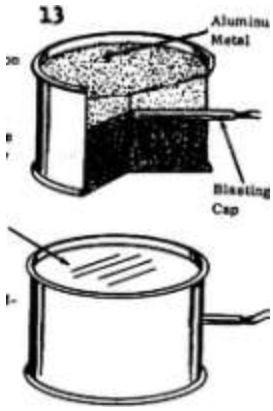
FERTILIZER EXPLOSIVE

An explosive munition can be made from fertilizer grade ammonium nitrate ami either fuel oil or a mixture of equal parts of motor oil ami

gasoline. When proiwrly prc|>arcd (this explosive munition can be detonated with a blasting cap.

Explosive MATERIAL REQUIRED;

Wooden Rod



Ammonium nitrate (not less than 32'. nitrogen)

Fuel oil or gasoline and motor oil (1:1 ratio)

Two flat boards. (At least one of these should he comfortably held in the hand, i.e. 2 x 4 and 3C> x »«.)

Bucket or other container for mixing ingredients Aluminum Iron or steel pipe or bottle, tin can or heavv-walled carcBjoard tube Metal Blasting cap

Wooden rod - 1/4 in. diameter Spoon or similar measuring conto'ner

PROCEDURE :

1. Spread a nun ll'ji of the ammonium nitrate on the large flat board and rub vigorously with the other board until the large particles are crushed into a very fine powder v that looks like flour (approx. 10 min).

NOTE: Proceed with Step 2 as soon as possible since the powder may take moisture from the air and become spoiled.

HOW TO USE:

2. Mix one measure (cup, tablespoon, etc.) of fuel oil with lb measures of the finely ground ammo* nium nitrate in a dry bucket or other suitable container and stir with the wooden rod. If fuel oil is not available, use one half measure of gasoline and one half measure of motor oil. Store in a waterproof container until ready to use.

This particular unit work, quite well to initiate charges of five pounds of Hour, i /2 gallon (1 . 2/3 , Uers) of gagoUne of ^ ££<*

S e " trtiZ; The 8olid materials may merely be COntalned '»

sack, or cardboard cartons. The gasoline may be placed in plastic-coated paper milk cartons, plastic or glass bottle*. The charges are

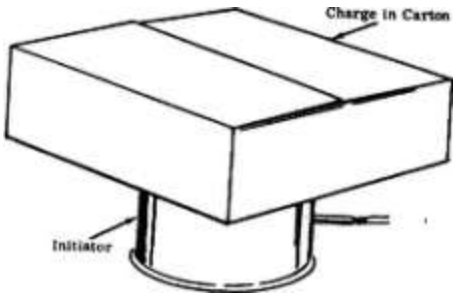
electrically or by fuse depending on the type of cap employed. This will destroy a 2.000 cubic feet enclosure (building 10 x 20 x !0 feet)

NOTE: For larger enclosure •«. „™-v„-.. ... 3 " S|KK,n lh ' 8 mixturc into an iron "" steel pipe which has an end cap

and charges enclosures ' *>* Proportionately larger initiator, threaded on one end. If a pipe is not available, you may use a dry tin

5 Lb. Solid can » a >■***• i ar or a heavy-walled cardboard tube.

Charge in Carton



Initiator

POOR MAN'S JAMES BOND Vol. 2

287

IMPROVISED MUNITIONS

NOTE: Take care not to tamp

or shake the mixture in the pipe. If mixture becomes tightly packed, one cap will not be sufficient to initiate the explosive.

17

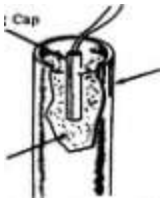
3, Stir and scrape the bucket sides occasionally until the mixture is

reduced to one quarter of its original volume, then stir continuously.

4. As the water evaporates, the mixture will become thicker until it reaches the consistency of cooked breakfast cereal or homemade fudge. At this stage of thickness, remove the bucket from the heat source, and sureac! the mass on the metal sheet.

Blasting Cap

4. Insert blasting cap Just beneath the surface of the explosive mix.



Pipe

Mixture

NOTE: Confining the open end of the container will add to the effectiveness of the explosive. Section I

16 No. 9

"RED OR WHITE POWDER" PROPELLANT

"Red or White Powder" Propellont may be prepared in a simple, safe manner. The formulation described below will result in approximately 2-1/2 pounds of powder. This is a small arms pro pell ant and should only be used in weapons with 1/2 in. inside diameter or less, such as the Match Gun or the 7.62 Carbine, but not pistols.

MATERIAL REQUIRED :

Heat source (Kitchen stove or open fire)

2 gallon metal bucket

Measuring cup (3 ounces)

Wooden spoon or rubber spatula

Metal sheet or aluminum foil rat least Id in. sq.)

Flat window screen (at least 1 ft. sq.)

Potassium nitrate (granulated) 2-1/3 cups

White sugar (granulated) 2 cups

Powdered ferric oxide (rust) 1/8 cup (if available)

Clearwater. 3-1/2 cups

5, While the material cools, score it with the spoon or spatula In crisscrossed furrows about 1 inch apart.

PROCEDURE

1. Place the sugar, potassium nitrate, and water in the bucket. Heat with a low flame, stirring occasionally until the sugar and potassium nitrate dissolve.

2. If available, add the ferric oxide (rust) to the solution. Increase the flame under the mixture until It

boils gently.

NOTE: The mixture will retain the rust coloration.

6. Allow the material to air dry, preferably in the sun. As it dries, rescore It occasionally (about every 20 minutes) to aid drying.

18

7. When the material has dried to a point where it is moist and soft but not sticky to the touch, place a small spoonful on the screen. Rub the material back and forth against the screen mesh with spoon or other flat object until the material is granulated into small worm-like particles.

*« After granulation, return the material to the sun to dry completely. ^.^ (f

19 No. i

PIPE HAND GRENADE

ffaad grenades can be mad* from a piece o« iron pipe. The filler caa M plastic or granular military *xplo*iv«, improvHcd explosive, or propclUat from shotgun or small arm* ammunition.

POOR MAN'S JAMES BOND Vol, 2

288

IMPROVISED MUNITIONS

MATERIAL REQUIRED

Iron pip*, threaded «nd», I Ml" Powder

to 1" diim., V to *" long. Two (Z) iron pip* cap*. Explosive or propellent Nonelectric bloating cop.

(Comrturclil or military) Fas* cord Hand drill Pilar*

PROCEDURE

1. Placo blasting cap on on* and of fuea cord and crimp with pilar*.

NOTE; To find out how long th* fue* cord should b*. chock th* tim* it tak*s a known length to burn. If 12 iach*s buraa in 30 eeconda. a 6-inch cord will ig. alt* th* graaad* in 15 seconds.

I. Screw pip* cap to oao oad of •ipo. Placo fuse cord with blatt-lag <*p lata th* eppoait* and *o that th* blaatlag cap 1* a*ar th* c*at*r of th* pip*. 20

Pl J»* DU

MATERIAL REQUIRED :

Block of TNT or other blaoting explosive NaiU

Non-Electric Military blasting cap

Fuse Cord

Tap*, etving, wire or glue

End Cap

Fuse Cord

NOTE: |f plastic explosive I* to ha need, flU pip* b*f*r* inserting bloating cap. Push a round stick* lata th* c*at*r of th* exploeive to make a hoi* and th*n insert th* Uaattag cap.

PROCEDURE :

1* If an explosive charge other than a standard TNT block is used, make a hole in the center

Fuse r*»d of tne ch * r 8* for inserting the

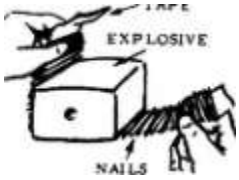
blasting cap. TNT can be drilled with relative safety. With plastic explosives, a hole can be made by pressing a round stick into the center of the charge. The hole should be deep enough that the blasting cap is totally , within the explosive. '

2. Tape, tie or glue one or two rows of closely packed nails to sides of explosive block. Nails should completely cover the four surfaces of the block.

EXPLOSIVE

HOLE FOR BLASTING CAP

TAPE EXPLOSIVE



3. Place blasting cap on one

end of the fuse cord and crimp BLASTING CAP with pliers.

NAILS

FUSE CORD

-Bloating Cap Pipe Cud Can

rui*

S. Pour explosive or propellent lata pipe a little bit at a tim*. Tap the baa* of the pip* frequently to e*ttl* filler.

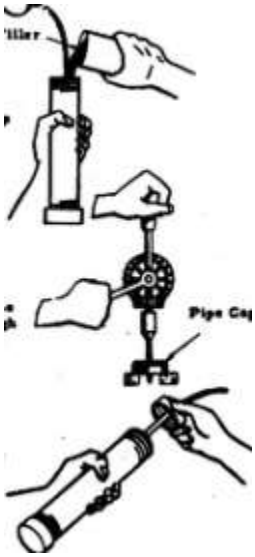
4. Drill a hole In th* cantor of the waaasemblod pip* cap large enough for th* fas* cord to pass through.

5. Wip* pip* thread* to remove

filler material.

Slide the drilled pip* cap th* fuss aad screw asniHlshl tkopino.

onto



NOTE: To find out how long the]

fuse cord should be, check the

time it takes a known length

to burn. If 12 inches (30 cm)

burns for 30 seconds, a 10

second dVlav will require a 4 inch [10cm) fuse.

22

NAILS

4. Insert the blasting cap la the hole in the block of explosiv Tape or tie fuao cord securely in placo so that it will not fall out whoa the grenade is thrown,

ALTERNATE USE:

An effective directional

_. - anti-personnel mine can bo made Pipe cap by p i 4Cing naiU on only one

aide of the explosive block. For this case, an electric

blaating cap can be used.

FUSE CORD BLASTING CAP

TARGET

.. Section 0 *■*■ No. 2

NAIL GRENADE Effective fragmentation grenades can be made from a

block of TNT or other blasting explosive and nails

_ . Section II 23 No. 3

WINE BOTTLE CONE CHARGE

This cone charge will penetrate 3 to 4 inches of armor. Placed on an engine or engine compartment it will disable a tank or other vehicle.

MATERIAL REQUIRED :

Glass wine bottle with false bottom (cone shaped)

Plastic or castable explosive

Blasting cap

Gasoline or Kerosene (small amount)

String

Adhesive tape

POOR MAN'S JAMES BOND Vol. 2

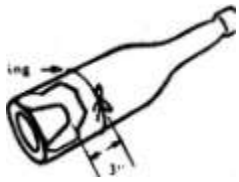
289

IMPROVISED MUNITIONS

PROCEDURE :

1. Soak a piece of string in gasoline or kerosene. Double wrap this string around the wine bottle String approximately 3 in. (7 1/2 cm) above the top of the cone.

NOTE: A small amount of motor oil added to the gasoline or kerosene will improve results.



2. Ignite the string and allow to burn for 1 to 2 minutes. Then plunge the bottle into cold water to crack the bottle. The top half can now be easily removed and discarded.

Burning String

Cold

3. H plastic explosive is used:

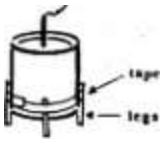
(a) pack explosive into the bottle a little at a time compressing with a wooden rod. Fill the bottle to the top.

(b) press a 1/4 in. wooden dowel 1/2 in. (12mm) into the middle of the top of the explosive charge to form a hole for the blasting rap.

2. Place the charge so that the bottom is 3 to 4 in. (? 1/2 to 10 cm) from the target. This can be done by taping legs to the charge or any other convenient means as long as there is nothing between the base of the charge and the target.

3. If electric cap is used, connect blasting cap wires to

firing circuit.



Container

it

Bottom Half ol Bottle

4. If TNT or other castable explosive is used: ,

(a) break explosive into small pieces using a wooden mallet or non-tparking metal tool*. Place piece* in a tin can.

2U

(b) Suspend this can in a larger container which is partly filled with water. A stiff wire or stick pushed through the smaller can will accomplish this.

NOTE: The effectiveness of this charge can be increased by placing inside a can, box, or similar container and packing sand or dirt between the charge and the container.

Section a

25 No. 4

GRENADE-TIN CAN LAND MINE This device can be used as a land mine that will explode when the trip wire Is pulled.

MATERIAL REQUIRED :

Hand grenade having side safety lever

Sturdy container, open at one end, that is just large enough to fit over

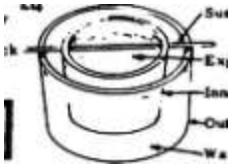
grenade and its safety lever (tin can of proper size is suitable). Strong string or wire NOTE: The container must be of such a size that, when the grenade is

placed in It and the safety pin removed, its sides will prevent the safety lever from springing open. One end must be completely open.

PROCEDURE ;

CAUTION: The inner can must not rest on the bottom of tn~e

outer container.



Suspension Rod

Explosive Inner Can

1. Fasten one piece of string to the closed end of container, making a strong connection. This can be String done by punching 2 holes in the can, looping the string through them, and

tying a knot.

2. Tie free .end of this string to bush, stake, fencepost, etc.

er Can

Water

3. Fasten another length of string to the grenade such that It cannot

(c) Heat the container on an electric hot plate or other heat source.interfere with the functioning of the Stir the explosive frequently with a wooden stick while it is melting, ignition mechanism of the grenade.

String

CAUTION: Keep area well ventilated while melting explosive Fumes may be poisonous.

(d) When all the exploaive has melted, remove the inner container and stir the molten explosive until it begins to thicken. During this time the bottom half of the wine bottle should be placed in the container of hot water. This will pre-heat the bottle ao that it will not crack when the explosive is poured.

(e) Remove the bottle from hot water and dry thoroughly. Pour molten explosive into the bottle and allow to cool. The crust which forms on top of the charge during cooling should be broken with a wooden stick and more explosive added. Do this as often as necessary until the bottle is filled to the top.

(0 When explosive has completely hardened, bore a hole for the blasting cap in the middle of the top of the charge about 1/2 in. (12mm) deep.

4. Insert grenade into container

String

Attached

To Can

26

t String Attached To Grenade

S. Lay free length of string across path and fasten to stake, bush, etc. The string should remain taut.

Stake

Coiateainer

HOW TO USE :

1. Place blasting cap in the hole the top of the charge. If nonelectric cap is used be sure cap is crimped around fuze and fuze la long enough to provide safe delay.

in

Tripwire

L

Grenade

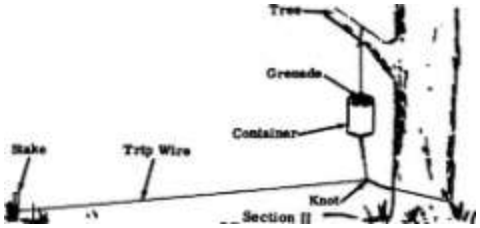
*^

HOW TO USE:

I. Carefully withdraw safety pin by pulling on ring. Be sure safety lever is restrained during this operation. Grenade will function in normal manner when trip wire Is pulled.

NOTE: In areas where concealment Is possible, a greater effect may be obtained by suspending the grenade several fset above ground, as

Illustrated below.



6. Insert second piece of rag wadding against stones and/or metal scrap. Pack tightly as before.

Metal Wad Scrap Wad Firing

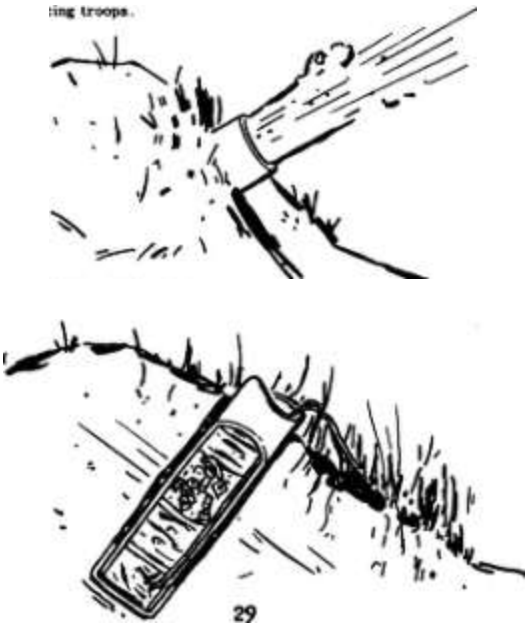
Leads

27 No< s

MORTAR SCRAP MINE A directional shrapnel launcher that can be placed in the path of advancing troops.

HOW TO USE :

1. Bury pipe in ground with open end facing the expected path of the enemy. The open end may be covered with cardboard and a thin layer of dirt or leaves as camouflage.



_ 2 " C on nect firing leads to battery and switch. Mine can be remotely

MATERIAL REQUIRED : fired when needed or attached to trip device placed in path of ad-

Iron pipe approximately 3 ft. (1 meter) long and 2 in. to 4 in. (5 to vancing troops. 10 cm) in diameter and threaded on at least one end. Salvaged

artillery cartridge case may also be used. NOTE: A NON-ELECTRICAL ignition system can be substituted for

Threaded cap to fit pipe. the electrical ignition system as follows.

Black powder or salvaged artillery propellant about 1/2 lb. (200 gins)

lotaL l - Follow above procedure, substituting safety fuse for tauter

Electrical igniter (commercial SQUIB or improvised igniter. Section

VI. No. 1). Safety or improvised fuse may also be used. 2. Light safety fuse when ready to fire.

Small stones about 1 in. (2-1/2 cm) in diameter or small size scrap; Mortar Mine

about 1 lb. (400gms> total. Rags for wadding, each about 20 in. by 20 in. (50 cm x 50 cm) Paper or bag Battery and wire Stick (non-metallic)

Note: Be sure pipe has no cracks or (laws.

28

PROCEDURE;

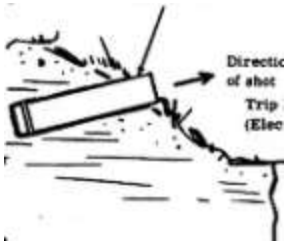
1. Screw threaded cap onto pipe.

2. Place propellant and igniter in paper or rag and tie package with

string so contents will not fall out.

Igniter Leads

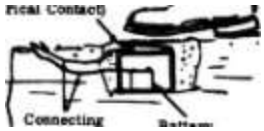
Propellant and igniter



Direction of shot

Trip Device

(Electrical Contact)



Battery

3. Insert packaged propellant and igniter into pipe until package rests against threaded

cap leaving firing leads extending from open end of pipe.

4. Roll rag till it is about 6 in. (15-1/2 cm)

long and the same diameter as pipe. Insert rag wadding against

packaged propellant igniter. With caution, pack tightly using stick.

5. Insert stones and/or scrap metal into pipe.

Connecting

Wires

Section II

30 No. 6

COKE BOTTLE SHAPED CHARGE

This shaped charge will penetrate 3 in. (7-1/2 cm) of armor. (It will disable a vehicle if placed on the engine or engine compartment).

Glass Coke bottle. 6-1/2 oft. size Plastic or eastable explosive, about 1 lb. (454 gm)

291

IMPROVISED MUNITIONS

Blasting cap

Metal cylinder, open at both ends, about

6 in. (IS cm) long and 2 in. (5 cm) inside

diameter. Cylinder should be heavy

walled for best results. Plug to lit mouth of coke bottle

(rags, metal, wood, paper, etc.) Non-metal rod about 1/4 in. (6 mm) in

diameter and 8 in. (20 cm) or more

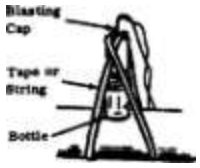
In length. Tape or string 2 tin cans if castable explosive is used (See Section II, No. 3)

NOTE: Cylinder may be cardboard, plastic, etc. if castable is used.
^Plug

PROCEDURE:

32

2. Place bottom of Coke Bottle flush against the target. If target is not flat and horizontal, fasten bottle to target by any convenient means, such as by placing tape or string around target and top of bottle. Bottom of bottle seta as stand-off.



I. Place plug In mouth of bottle.

explosive! CAUTION: Be sure that base of bottle is flush against target and that there Is nothing between the target and the base of the bottle.

3. Connect leada from bleating cap to firing circuit. Method II: If non-electrical Maiting cap is used:

Cylinder

2. Place cylinder over top of bottle until bottom of cylinder rests on widest part of bottle. Tape cylinder to bottle. Container should be straight on top of bottle.

3. If plastic explosive is used:

Tape

Bottle

a. Place explosive in cylinder a little at a time tamping with rod until cylinder is full.

b. Press the rod about 1/2 in. (1 cm) into the middle of the top of the explosive charge to form a hole for the blasting cap.

4. If castable explosive is used, follow procedure of Wine Bottle Cone Charge, Section II, No. 3, Step 4, a through f.

HOW TO USE.

Explosive (Inside Cylinder)

Bottle

Method 1. If electrical blasting cap is useaT

1. Place blasting cap in hole in top of explosive,

CAUTION: Do not insert blasting cap until charge is ready to be detonated.

1. Crimp cap around fuse.

[

CAUTION; Be sure fuse is long enough to provide a safe delay.

2. Follow steps 1, 2, and CAUTIONS of Method I.

1

3·

Light fuse when ready to Are.

Section U

33

No. 7 CYLINDRICAL CAVITY SHAPED CHARGE

A shaped charge can be made from common pipe. It will penetrate 1-1/2 in. (3-1/2 cm) of steel, producing a hole 1-1/2 in. (3-1/2 cm) in diameter.

MATERIAL REQUIRED :

Iron or steel pipe. 2 to 2-1/2 in. (3 to 6-1/2 cm) in diameter and 3 to

4 in. (7-1/2 to 10 cm) long Metal pipe, 1/2 to 3/4 in. (1-1/2 to 2 cm) in diameter and 1-1/2 in.

(3-1/2 cm) long, open at both ends. (The wall of the pipe should

be as thin as possible.) Blasting cap

Non-metallic rod, 1/4 in. (6 mm) in diameter Plastic or castable explosive 2 metal cans of different sizes

Stick or wire } If castable explosive is used

Heat source

I-

PROCEDURE :

1. If plastic explosive is used:

a. Place larger pipe on flat surface- Hand pack and tamp explosive into pipe. Leave approximately 1/4 in. (G mm) space at top.

p .y*-w*

* f .

\

Approximately 1/4 in. Empty

Space

Large Pipe

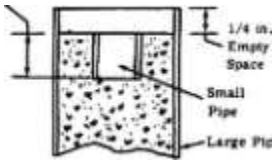
Plastic Explosive

Flat Surface

b. Push rod into center of explosive. Enlarge hole in explosive to diameter and length of small pipe.

1-1/2 in.

Insert small pipe into hole.



Large Pipe

POOR MAN f S JAMES BOND Vol. 2

29 2

IMPROVISED MUNITIONS

[

IMPORTANT: Be sure direct contact is made between explosive and small pipe. Tamp explosive around pipe by hand if necessary.

3U

d. Make sure that there la 1/4 in. (6 mm) empty space above small

pipe. Remove explosive if necessary.

1/4 in.

3. Place other end of pipe Hush against the target. Fasten pipe to target by any convenient means, ■aea aa by placing tape or string around targe* and top of pipe, if target is not flat and horUontal

BlMting Cap

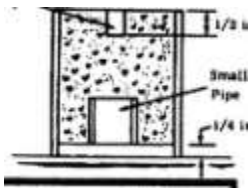
Pipe

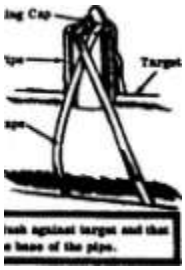
Tape

Hole for Blasting Csp

Turn pipe upside down snd push rod 1/2 in. (1-1/4 cm) into center of opposite end of explosive to form a hole for the blasting cap.

~T*/2 HI.





1/4 in.

CAUTION: Be smre thai base of pips is Que* against target tars to nothing b e tw een tat target and the base of the p ipe.

S. Connect toads frees blasting cap to firing circuit.

Method H - If non-electrical blasting eap is need. Crtatpcnp

[CAUTION: Do not insert blasting cap in hole until ready to fire shaped charge.

2. If TNT or other castable explosive is used:

a. Follow procedure. Section n. No. 3, Step 4, Parts a, b, c, including CAUTIONS.

b. When all the explosive has melted, remove the inner container and stir the molten explosive until it begins to thicken.

1;

E

CAUTION: Be sure fuse U long

to provide a safe delay

t. Fellow Steps 1, 2, and CAUTION of Method [.

]

J Light

ready to fire.

Section in

36 no. i

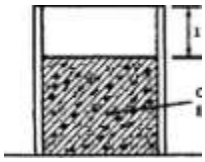
PIPE PISTOL FOR 9 MM AMMUNITION

A 9 mm pistol can be made from 1/4" steel gas or water pipe

fittings..

C

Place large pipe on flat surface. Pour explosive into pipe until it is 1-3/4 in. (4 cm) from the top.



3/4 in.

Castable Explosive

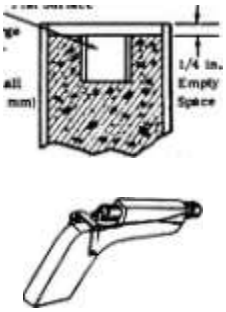
d.

e.

« u *. Flat Surface Small Pipe

Place small pipe in center of large pipe so that it rests on top of explosive. Holding small pipe in place, pour explosive around small pipe until explosive is 1/4 in, (6 mm) from top of large pipe.

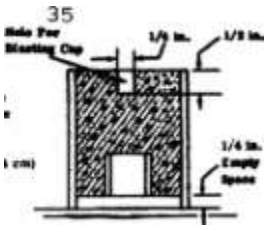
Allow explosive to cool. Break crust that forms on top of the charge during cooling with a wooden stick and add more explosive. Do this as often as necessary until explosive Is 1/4 in. (6 mm) from top.



f. When explosive baa completely hardeaed, tun pipe upside down and bore a bole for the btaetlag cap in the middle of the top of the charge about 1/2 in. (1-1/4 cm) oeep.

HOW TO USE :

Method I - If electrical Waiting cap is used: 1. Place blasting cap la hole made for It.



MATERIAL REQUIRED

1/4" nominal alae steel pipe 4 to 6 inches long with threaded ends.

1/4** Solid pipe plug

Two (2) steel pipe couplings

Metal strap - roughly 1/8" *

1/4" x.5" Two (2) elastic bands Flat head nail - 6D or SD (approx

1/16" diameter) ,

Two (2) wood screws #6

Wood »" x $" x 1"

Drill

1/4" wood Or metal rod, (approx

•" »Onf)

PROCEDURE

1. Carefully inspect pipe and fittings.

a. Make sure that there are NO cracks or other Claws in the pipe or fittings.

b. Check inside diameter of pipe using a 9 mm cartridge as a gauge. The bullet should closely fit into the pipe without for clng but the cartridge case SHOULD NOT fit into pipe.

c. Outside diameter of pipe MUST NOT BE l^» than 1 1/2 times bullet diameter (. 536 inches; 1.' 37 cm)

2. Drill a9/!6" (1.43cm) diameter hole 3/8" (approximately 1 cm) into one coupling to remove the thread.

Drilled section should fit tightly over smooth section of pipe.

H -"»-

wrrmm,

9/16'

[

CAUTION: Do not insert blsetlag cap until charge la ready to lire.

1

3. Drill a 24/64" (1 cm) diameter hole 3/4" (1. 9 cm) into pipe. Uae cartridge aa a gauge; when a cartridge is inserted into the pipe, the

base of the caee should be even with the end of the pipe. Thread coupling tightly onto pipe, drilled end first.

25" l~f ~ > —

64] t ■

3/4

CZZD

POOR MAN'S JAMES BOND Vol. 2

293

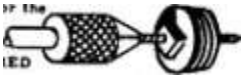
IMPROVISED MUNITIONS

37

4. Drill a hole in the center of the pipe plug just Urge enough for the nail to fit through.

HOLE MUST BE CENTERED

IN PLUG.

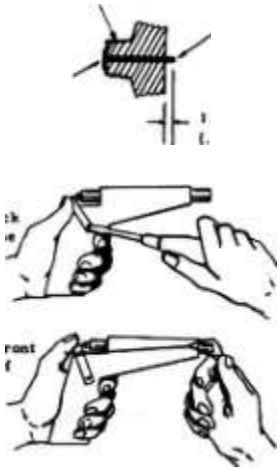


10. Position metal strap on stock to that top will hit the head of the nail. Attach to stock with wood screw on each side.

11. String elastic bands from front coupling to notch on each side of the a trap.

5. Push nail through plug until pj pe p| u « head of nail is flush with square end. Cut nail off at other end 1/16" f. 1*8 cm) away from plug. Round off end of nail with file.

Nail



Rounded

SAFETY CHECK - TEST FIRE PISTOL BEFOREHAND FIRING

1. Locate & barrier such as a stone wall or large tree which you can stand behind in case the pistol ruptures when fired.

1/16 in. 2. Mount pistol solidly to a table or other rigid support at least (. 158 cm.) ten feet in front of the barrier.

6. Bend metal strap to "U" shape f* l,4 "<\/ Notch and drill holes for wood screws. File two small notches at top.

This dimension to be Z" greater than unas i length ol

■ i •— i

3. Attach a cord to the firing strap on the pistol.

4. Holding the other end of the cord, go behind the barrier.

5. Pull the cord so that the firing strap is held back.

6. Release the cord to fire the pistol. (If pistol does not fire, shorten the elastic bands or increase their number*)

IMPORTANT : Fire at least five rounds from behind the barrier and then re-inspect the pistol before you attempt

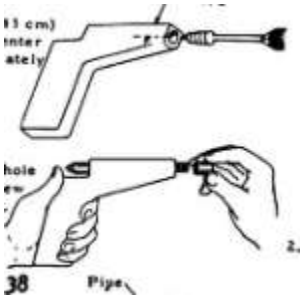
to hand fire it.

7. Saw or otherwise shape 1" (2. 54 cm) thick hard wood into stock.

\u-

8. Drill a 9/16" diameter (1.45 hole through the stock. The cen of the hole should be approximat 1/2" (I. 27 cm) from the top.

9. Slide the pipe through this hole and attach front coupling. Screw drilled plug into rear coupling.

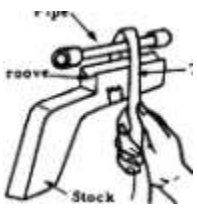


39

HOW TO OPERATE PISTOL 1. To Load

a. Remove plug from rear c oupling.

NOTE: If 9/16" drill is not avail- Groove able cut a "V" groove in the top of the stock and tape pipe securely in place.



b. Place cartridge into pipe.

c. Replace plug.

To Fire

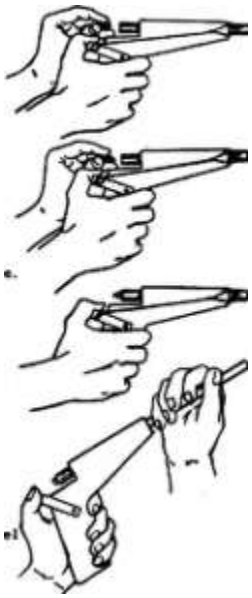
a. Pull strap back and hold with thumb until ready.

b. Release strap.

Tape3 ' To Rcmov c Shell Case

a. Remove plug from rear coupling.

b. Insert 1/4" diameter steel or wooden rod into front of pistol and push shell case out.



7. File threaded end of plug flat.

do

SHOTGUN (12 GAUGE)

A 12-gauge shotgun can be made from 3/4 mad fittings.

II

MATERIALS REQUIRED

or gas pipe

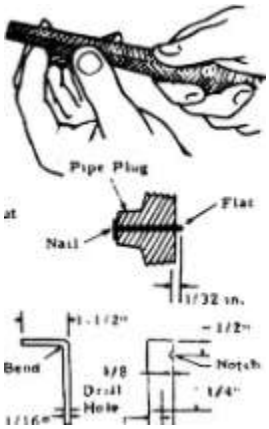
8. Push nail through plug and cut off flat 1/32" past the plug.

9. Screw plug into coupling.

Wood 2" x 4" x 32"

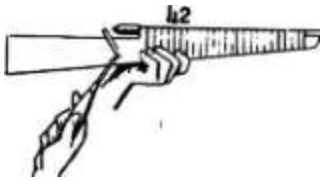
3/4" nominal size water or gas pipe 20'* to 30" long threaded on

10. Bend 4" metal strap into "L" shape and drill hole for wood screw. Notch metal •trap on the long side 1/2" from bend.



Drill i.l '|

(A r



1/2"

one end. 3/4" steal coupling Solid 3/4" pipe plug Metal strap (1/4" x 1/16" x 4") Twine, heavy (100 yards approximately) 3 wood screws and screwdriver Flat head nail 6D or 8D Hand drill

Saw or knife

File

Shellac or lacouer

Elastic Bands

PROcfcuuK*;

1, Carefully inspect pipe and fittings*

... fc . fc fc . , A . „ n ' Portion metal strap on stock so that top will hit the head of

a. Make sure that there are no cracks or other flaws, the nail. Attach to stock with wood screw.

b. Check inside diameter of pipe. A 12-gauge shot shell should /~ plu 8 fit into the pipe but the brass rim should not fit. N *"

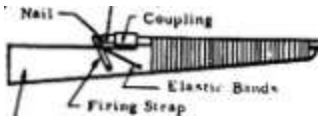
c. Outside diameter of pipe must be at least 1 in. (2. 54 cm).

32" Approx J

lr 2 "

1

13-1/2" —I



L'la Mir Band* Firing Strap

Stock

-U.

L 4 ., 2

2. Cut stock from wood using a saw or knife.

D

3. Cut a 3/8" deep "V" groove in top of the stock,

la

4. Turn coupling onto pipe until tight. Coupling v -Twine pt pe

3/8'

Slot

12. Place screw in each side of stock about 4" in front of metal strap. Pass elastic bands through notch in metal strap and attach to screw on each side of the stock. SAFETY CHECK - TEST FIRE SHOTGUN BEFORE HAND FIRING

1. Locate a barrier such as a stone wall or large tree which you can stand behind in case the weapon explodes when fired.

2. Mount shotgun solidly to a table or other rigid support at least ten feet in front of the barrier.

3. Attach a long cord to the firing strap on the shotgun.

4. Holding the other end of the cord, go behind the barrier.

5. Pull the cord so that the firing strap is held back.

S. Coat pipe and "V"

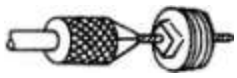
groove of stock with shellac or lacquer

and. while still wet, place pipe in "V" groove and wrap 6. Release the cord to fire the shotgun. (If shotgun does not fire,

_ ^ ..._,. ♦_.♦*,.-..-:— ... ^ „„..-- „< >. ..: _ shorten the elastic bands or increase their number. \

pipe and stock together using two heavy layers of twine. Coat twine with shellac or l*<=qu« *«*r «*<=h layer.

6. Drill a hole through center of pipe plug Urge enough for nail to pass through.



IMPORTANT; Fire at least five rounds from behind the barrier and then re-inspect the shotgun before you at.

tempt to shoulder fire it.

U3

HOW TO OPERATE SHOTGUN

I. To Load

a. Take plug out of coupling.

b. Put shotgun shell into pipe.

c. Screw plug hand-tight into coupling.

2, To Fire

picture87

a. Pull strap back and hold with thumb.

b. Release strap.

3. To Unload Gun

a. Take plug out of coupling.

b. Shake out used cartridge.

NOTE: If cartridge is of roll crimp type, remove top wad.

2. Pour shot from shell.

1 3. Replace one layer of shot in the cartridge. Pour in filler material to fill the spaces between the shot.

k$

picture88

WAD PROPELLANT

4. Repeat Step 3 until all shot has been replaced.

5. Replace top wad (if applicable) and re-fold crimp.

picture89

6. Roll shell on flat eurface to smooth out crimp and restore roundness.

7, Seal end of case with wax.

. . Section m W No. 3

SHOTSHELL DISPERSION CONTROL

When desired, shotshell can be modified to reduce shot dispersion.

MATERIAL REQUIRED :

Shotshell

Screwdriver or knife

Any of the following filler materials:

Crushed Rice

Rice Flour

Dry Bread Crumbs

Fine Dry Sawdust

PROCEDURE:

picture90

HOW TO USE:

This round is loaded and fired in the same manner as standard shotshell. The shot spread will be about 2/3 that of a

standard round.

, - Section rn

40 No. 4

CARBINE (7.82 mm Standard Rifle Ammunition)

A rifle can be made from water or gas pipe and fittings, cartridges arc used for ammunition.

Standard

picture91

STAR CRIMP

picture92

1, Carefully remove crimp from shotshell using a screwdriver or knife.

picture93

ROLL CRIMP

MATERIAL REQUIRED :

Wood approximately 2 in. x 4 in. x 30 in.

1/4 in. nominal size Iron water or gas pipe 20 in. long threaded at one end.

Twine, heavy (100 yards approx.) 3 wood screws and screwdriver Flat head nail about 1 in. long Hand drill Saw- or knife

296

IMPROVISED MUNITIONS

File

Pipe wrench

Shellac or lacquer

Elastic band*

Solid 3/8 in. pipe plug

3/8 in. to 1/4 In. reducer 3/8 in. x 1-1/2 in. threaded pipe 3/8 in. pipe coupling Metal strap approximately 1/2 in. x 1/26 in. x 4 In.

PROCEDURE:

1. Inspect pipe and fittings carefully.

a. Be sure that there are no cracks or flaws.

b. Check inside diameter of pipe. A T. 82 mm projectile should fit into 3/8 in. pipe.

2. Cut stock from wood using saw or knife.

picture94

3. Cut a 1/4 In. deep "V" groove In top of the stock.

picture95

L— 1-1/2"

Fabricate rifle barrel from pipe.

b.

File or drill inside diameter of threaded end of 20 In. pipe for about 1/4 In. so neck of cartridge case will fit In.

Screw reducer onto threaded pipe using pipe wrench.

picture96

3/8" to 1/4"

e. Screw short threaded pipe into reducer.

3/8" Coupling Reducer d. Turn 3/8 pipe coupling onto

threaded pipe using pipe wrench. All fittings should be as tight as possible. Do not split fittings. Threaded Pipe

3/8" x J-l/2"

5. Coat pipe and "V" groove of stock with shellac or lacquer. While still wet, place pipe in "V" groove and wrap pipe and stock together using two layers of twine. Coat twine with shellac or lacquer after each layer.

6. Drill a hole through center of pipe plug large enough for nail to

pass through.

7. File threaded end of plug flat*

8. Push nail through plug and out off rounded 1/32 in. (2 mm) past the plug.

9. Screw plug into coupling.

10. Bend 4 in. metal strap into "L" shape and drill hole for wood screw. Notch metal strap on the long side 1/2 in. from bend.

picture97

11. Position metal strap on stock so that top will hit the head of the nail. Attach to stock with wood ■crew.

picture98

12. Place screw in each side of stock about 4 in. in front of metal strap. Pass elastic bands through notch in metal strap and attach to screw on each side of the stock.

Pipe Plug -Coupling

N-il" 1 S

picture99

Firing'strap El"*c Bands SAFETY CHECK - TEST FIRE RIFLE BEFORE HAND FIRING

1. Locate a barrier such as a stone wall or large tree which you can stmnd behind to test fire weapon.

2. Mount rifle solidly to a table or other rigid support at least ten feet in front of the barrier.

U9

3. Attach a long cord to the firing strap on the rifle.

4. Holding the other end of the cord, go behind the barrier.

5. Pull the cord so that the firing strap is held back.

6. Release the cord to fire the rifle. (If the rifle does not Are, shorten the elastic bands or increase their number.)

IMPORTANT: Fire at least five rounds from behind a barrier MMMMM a^Jhenj£tn^pe^t_the^rifle before you attempt to shoulder fire

HOW TO OPERATE RIFLE : I. To Load

a. Remove plug from coupling.

D

 picture100

b. Put cartridge into pipe.

c. Screw plug hand-tight into

- _ _,, coupling. 2. To Fire

 picture101

 picture102

■i.

a. Pull strap back and hold with thumb.

b. Release strap. To Unload Gun

a. Take plug out of coupling.

b. Drive out used case using stick or Iwig

IMPROVISED MUNITIONS

50

Section III

No. 5

REUSABLE PRIMER A method of making a previously fired primer reusable. MATERIAL REQUIRED :

Used cartridge esse

2 long nails having approximately the same diameter as the inside of

the primer pocket "Strike-anywhere'" matches - 2 or 3 ure needed (or e ach primer Vise Hammer

Knile or other sharp edged instrument PROCEDURE:

picture103

1. File one nail to a needle point so that it is small enough to fit through hole in primer pocket.

2. Place cartridge case and nail between jaws of vise. Force out fired

primer with nail as shown: Viae

picture104

4. File down point of second nail until tip is flat.

5. Remove indentations from face

of primer cup with hammer and flattened

nail.

6. Cut off tips of the heads of "strike-anywhere" matches using knife. Carefully crush the match tips on dry surface with wooden match stick until the mixture is the consistency of sugar.

picture105

Primer Cup

Head

Wooden

Match Stick

[

CAUTION: Do not crush more than 3 match tips at one time or the mixture may explode.

7. Pour mixture into primer cup. Compress mixture with wooden match stick until primer cup ia fully packed.

picture106

wooden Match SUck

Mixture

Primer

8. Plsce anvil in primer pocket with legs down.

Pocket / -Anvil

^ B83 (| Cartridge lill-^ Ca«

». Place cup in pocket with mixture facing downward.

fixture Primer Anvil / ^Cup

picture107

10. Place cartridge case and primer cup between vise jaws, and press slowly until primer is seated into bottom of pocket. The primer is uow ready to use.

Vise Jaw

Primer Cup

picture108

t? 9 Section in -* c No. 6

PIPE PISTOL FOR .43 CALIBER AMMUNITION

A . 45 caliber pistol can be made from 3/8 in. nominal diameter steel gas or water pipe and fittings. Lethal range is about 13 yards (10-1/2 meters).

MATKK1AL REQUIRED :

Steel pipe. 3/6 in. (1 cm) nominal diameter and 6 in. (15 cm) long

with threaded ends. 2 threaded couplings to fit pipe Solid pipe plug to fit pipe coupling

Hard wood. 4-1/2 in. x 6-1/2 in. x 1 in. (21 cm x 16-1/2 cm x 2-1/2 cm) Tape or string

Flat head nail, approximately 1/16 in. (1-1/2 mm) in diameter 2 wood screws, approximately 1/lG in. (1-1/2 mm) in diameter Metal strap, 3 in. x 1/4 in. x 1/6 in. (12-1/2 cm x G mm x I mm) Bolt, 4 in. (10 cm) long, with nut (optional). Elastic bands Drills, one 1/16 in. (1-1/2 mm) In diameter, and one having same

diameter as bolt (Optional). Rod, 1/4 in, (6mm) in diameter and tt in. (20 cm) long Saw or knife

PROCEDURE :

1. Carefully inspect pipe and fittings.

a. Make sure that there are no cracks or other flaws in the pipe and fittings.

b. Check inside diameter of pipe using a .45 caliber cartridge as a gauge. The cartridge case should fit into the pipe snugly but without forcing.

c. Outside diameter of pipe MUST NQT BE less than 1-1/2 times the bullet diameter.

2. Follow procedure of Section III, No. 1, steps 4, 5, and 6.

53

1"

3. Cut stock from wood li

using saw or knife. '

picture109

1-1/2

4. Cut a 3/8 in. (9-1/2 mm) deep groove in top of stock.

5. Screw couplings onto pipe. Screw plug into one coupling.

picture110

6. Securely attach pipe to stock using string or tape.

picture111

Plug

7. Follow procedures of Section III, No. 1, steps 10 and 11,

8. (Optional) Bend bolt for trigger. Drill hole in stock and place bolt in hole so strap will be anchored by bolt when pulled back, If-bolt is not available, use strap as trigger by pulling back and releasing.

Metal Strap

muim/i

 picture112

9. Follow-SAFETY CHECK. Section HI, No. 1

 picture113

Bolt

HOW TO USE:

1. To load;

a. .Remove plug from rear coupling.

b. Wrap string or elastic band around extractor groove so case will seat into barrel securely.

 picture114

Extractor Groove

 picture115

c.

Place cartridge in pipe.

d. Replace plug,

2. To Fire:

 picture116

a. Pull metal strap back and anchor in trigger.

b. Pull trigger when read)- to fire

NOTE: If bolt is not used, pull

strap back and release.

3. To remove cartridge case:

a. Remove plug from rear coupling.

b. Insert rod into front of pistol and push cartridge case out.

picture117

55

^vm

Section m

No. 7 MATCH GUN An improvised weapon using safety match heads as the propel la nt

and a metal object as the projectile. Lethal range is about 40 yards

(36 meters).

MATERIAL REQUIRED :

Metal pipe 24 in. (61 cm) long and 3/8 in. (1 cm) in diameter (nominal

size) or its equivalent, threaded on one end.

End cap to fit pipe

Safety matches - 3 books of 20 matches each.

Wood - 28 in. x 4 in. x 1 in. (70 cm x 10 cm x 2. S cm) Toy caps OR safety fuse OR "Strike-anywhere matches" (2) Electrical tape or string

Metal strap, about 4 in. x 1/4 in. x 3/16 in. (10 cm x 6 mm x 4.5 mm) 2 rags, about 1 in x 12 in. and 1 in. x 3 in. (2-1/2 cm x 30 cm and

2-1/2 cm x 8 cm) Wood screws Elastic bands

Metal object (steel rod, bolt with head cut off, etc.), approximately 7/16 in. (11 mm) in diameter, and 7/16 in. (11 mm) long if iron or steel, 1-1/4 in. (31 mm) long if aluminum, 5/16 in. (8mm) long if lead.

Metal disk I in. (2-1/2 cm) in diameter and 1/16 in. (1-1/2 mm) thick Bolt, 3/32 in. (2-1/2 mm) or smaller In diameter and nut to fit Saw or knife PROCEDURE .

1. Carefully inspect pipe and fittings. Be sure that there are no cracks or other flaws.

2. Drill small hole In center of end cap. If safety fuse is used, be sure it will pass through this hole.

56

picture118

3. Cut stock from wood using saw or knife.

picture119

<• Cut 3/8 in. (9-l/ 2 mm) deep ,. v „ groovc in tQp Qf stQck

3/8'

picture120

5. Screw end cap onto pipe until finger tight.

6. Attach pipe to stock with string or tape.

picture121

picture122

7. Bend metal strap into "L"

shape and drill holes for wood

screw. Notch metal strap on

long side 1/2 in. (1 cm) from 1/8 "

bend. w

8. Position metal strap on stock so that the top will hit the center of hole drilled in end cap.

57

9. Attach metal disk to strap with nut and bolt. This will deflect blast from hole in end cap when gun is fired. Be sure that head of bolt is centered on hole in end cap.

picture123

Bolt

Disc

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299

IMPROVISED MUNITIONS

10. Attach strap to stock with wood screws.

picture124

11, Place screw on each side of stock about 4 In. (10 cm) in front of metal strap. Pass elastic bands through notch in metal strap and attach

to screw on each side of stock.

picture125

HOW TO USE :

A. When Toy Caps Arc Available

1. Cut off match heads from 3 books of matches with knife. Pour match heads into pipe.

2. Fold one end of 1 in. x 12 in. rag 3 times so that It becomes i one inch square of 3 thicknesses. Place rag into pipe to cover match heads, folded end first. Tamp firmly WITH CAUTION

Match Heads

picture126

picture127

End Cap

Folded Rag

Metal Pipe

3. Place metal object into pipe. Place 1 in. x 3 in. rag into pipe to cover projectile. Tamp firmly WITH CAUTION.

Tape

4. Place 2 toy caps over small hole in end cap. Be sure metal •trap will hit caps when it is released.

NOTE: It may be necessary to tape toy caps to end cap.

Toy Caps

End Cap

5. When ready to fire, pull metal strap back and release.

B. When •^Strike-Anvwhe^e'^ Matches Are Available :

1. Follow steps 1 through 3 in A. af*^ T ' P

Head

Wooden

 picture128

2. Carefully cut off tips of heads of 2 ■strike-anywhere" matches with knife.

Match Stick

 picture129

4. Place second match tip on a piece of tape. Place tape so match tip is directly over hole in end cap.

End Cap 5. When ready to fire, pull metal strap back and release.

C. When Safety Fuse Is Available: (Recommended for Booby Traps!

1. Remove end cap from pipe. Knot one end of safety fuse. Thread safety fuse through hole in end cap so that knot Is on inside of end cap.

Matches

2. Follow steps 1 through 3 in A.

3. Tie several matches to safety fuse near outside of end cap.

NOTE: Bare end of safety fuse should be inside match head cluster.

 picture130

Safety Fuse

Match Cover

 picture131

3. Place one tip in hole in end cap. Push in with wooden end of match stick.

4. Wrap match covers around matches and tie. Striker should be in contact with match bands.

5. Replace end cap on pipe.

6. When ready to fire, pull match cover off with strong, firm, quick motion.

60

SAFETY CHECK - TEST FIRE GUN BEFORE HAND FIRING

1. Locate a barrier such as a stone wall or large tree which you

can stand behind in case the weapon explodes when fired.

2. Mount gun solidly to a table or other rigid support at least ten feet in front of the barrier.

3. Attach a long cord to the firing strap on the gun.

4. Holding the other end of the cord, go behind the barrier.

5. Pull the cord so that the firing strap is held back.

6. Release the cord to fire the gun. (If gun does not fire, shorten the elastic bands or increase their number.)

IMPORTANT: Fire at least five rounds from behind the barrier and then re-Inspect the gun before you attempt to shoulder fire it.

POOR MAN'S JAMES BOND Vol. 2

300

IMPROVISED MUNITIONS

Section 111 61 No. 8

RIFLE CARTRIDGE

NOTE: See Section III, No. 5 for reusable primer.

A method of making a previously fired rifle cartridge reusable
MATERIAL REQUIRED -

Empty rifle cartridge, be sure that it still fits inside gun.

Threaded bolt that fits into neck of cartridge at least 1-1/4 in, (3 C nu long.

Safety or "strike-anywhere" matches (about 58 matches are needed NOTE: " * M ^ t does not flt • nu efl v » force paper or match sticks between for 7.62 mm cartridge) bolt and case, or wrap tape around bolt before inserting in case.

Section fV

picture132

Rag wad (about 3/4 in. (1-1/2 cm) square for 7.62 mm cartridge*
Knife ^

Saw

NOTE: Number of matches and size of rag wad depend on particular cartridge used.

PROCEDURE:

1. Remove coating on heads of matches by scraping match sticks with sharp edge.

CAUTION: If wooden "strike-anywhere" matches are used, cut off tips first . Discard tips or use for Reusable Primer, Section HI, No. 5.

picture133

63 no. i

RECOILLESS LAUNCHER

A Ami direction*! scrap fragment launcher which can be placed to cover the path of advancing, troops.

2. Fill previously primed cartridge case with match head coatings up to Us neck. Pack evenly and tightly with match stick.

picture134

Wooden

Match Stick.

Neck of

Cartridge

picture135

Match Heads

jCAUTION: Remove head of match stick before packing. In all packing [operations, stand off to the side and pack gently. Do not hammer.

3. Place rag wad in neck of case. Pack with match •tick from which head was removed.

picture136

MATERIAL REQUIRED:

Iron water pipe approximately 4 ft. (1 meter) long and 2 to 4 in. (5 to

10 cm) in diameter

Black powder (commercial) or salvaged artillery propellant about 1/2 lb. (200 gms)

Safety or Improvised fuse (Section VI, No. 7) or improvised electrical igniter (Section VI, No. 2)

Stones and/or metal scrap chunks approximately 1/2 in. (1 cm) in diameter - about 1 lb. (400 gms) total

4 rags for wadding, each about 20 in. by 20 in. (50 cm by 50 cm)
Wire * '

Paper or rag

NOTE: Be sure that the water pipe has ao oracks or flaws,

6U

PROCEDURE:

Packaged

Propellant

1. Place propellant and igniter in paper or rag and tie with string so contents cannot fall out.

4. Saw off head end of bolt so remainder is approximately the length of the standard bullet.

.Length of Standard Bullet

5. Place bolt in cartridge case so that it sticks out about the same length as the original bullet.

picture137

Firing

Leads

picture138

2. Insert packaged propellant and igniter in eenter of pipe. Pull firing leads out one end of pipe.

3. Stuff a rag wad into each end of pipe and lightly tamp using; a flat end stick.

4. Insert stones and/or scrap metal into each end of pipe. Be sure the same weight of material is used in each side.

Rag Wadding

Stones and Scrap Metal

picture139

Stones and Packaged

Scrap Metal Propellant

5. Insert a rag wad into each end of the pipe and pack tightly as before. HOW TO USE :

1. Place scrap mine In a tree or pointed In the path of the enemy.

Attach igniter lead to the firing circuit. The recolUess launcher la now ready to fire.

2. If safety or improvised fuse is used instead of the detonator, place the fuse into the packaged propellant through a hole drilled in the center of the pipe. Light free end of fuse when ready to fire. Allow for normal delay time.

CAUTION:

Scrap will be ejected from both ends of the launcher.

Section IV

6$

No. 2 SHOTGUN GRENADE LAUNCHER

This device can be used to launch a hand grenade to a distance of 160 yards (150 meters) or more, using a standard 12 gauge shotgun.

66

Wooden Block

4. Place the base of the grenade Ln the depression in the wooden block. Securely fasten grenade to block by wrapping tape (or wire) around entire grenade and block.

NOTE: Be sure that the tape (or wire) does not cover hole in block or Interfere with the operation of the grenade safety lever.

3. Drill hole through the center of the aecond wooden block, so that it will Just slide over the outside of the gun barrel.

«. Drill a hole in the center of the bottom of the tin can the same size ma the hole in the block.

picture140

Tape

7. Attach can to block aa shown.

Nail

*

MATERIAL REQUIRED :

Grenade (Improvised pipe hand grenade. Section II, No. 1. may be used)

12 gauge shotgun

12 gauge shotgun cartridges

Two washers, (brass, steel, iron, etc.), having outside diameter of 3/8 in. (l-i/2 cm)

Rubber disk 3/4 in. (2 cm) in diameter and 1/4 in. (6 mm) thick (leather. ncoprenc, etc. can be used)

A 30 in. (75 cm) long piece of hard wood (maple, oak. etc.approximately 5/8 in. (1-1/2 cm) in diameter. Be sure that wood will slide into barrel easily.

Tin can (grenade and its safety lever must fit into can)

Two wooden blocks about 2 in. (5.cm) square and 1-1/2 in. (4 cm) thick

One wood screw about 1 in. (2-1/2 cm) long

Two nails about 2 in. (5 cm) long

12 gauge wads, tissue paper, or cotton

Adhesive tape, string, or wire

Drill

PROCEDURE :

1. Punch hole in center of rubber disk large enough for screw to pass

through.

Washer Wooden Stick

Waaher

2. Make push-rod as shown.

Screw

 picture141

Rubber Disk

NOTE: Gun barrel is slightly less than 3/4 inch in diameter. If rubber disk does not fit in barrel, file or trim it very slightly. It should fit tightly.

3. Drill a hole through the center of one wooden block of such size that the push-rod will fit tightly Whittle a depression around the hole on one side approximately 1/8 in (3 mm) and large enough for the grenade to rest in.

 picture142

'Nail

8. Slide the can and block onto the barrel until muzzle passes can open end. Wrap a small piece of tape around the barrel an inch or two from the end. Tightly wrapped string may be used instead of tape. Force the can and wooden block forward against the tape so that they *re securely held in place. Wrap tape around the barrel behind the can

Wooden

Block

 picture143

t 4

Tape

Cun Barrel

CAUTION: Be sure that the can is securely fastened to the gun barrel. If the can should become loose and slip down the barrel after the launcher is assembled, the grenade will explode after the regular delay time.

V9. Remove crimp from a 12 gauge shotgun cartridge with pen knife. Open cartridge. Pour shot from shell. Remove wads and plastic liner if present.

10. Empty the propellant onto a piece of paper. Using a knife, divide the propellant in half.

Replace half of the propellant into the cartridge case.

IL. Replace the 12 gauge cardboard wads into cartridge case.

picture144

picture145

3 Cardboard Wads

1/2 Original Propellant

NOTE; If wads are not available. Bluff tissue paper or cotton into the cartridge case. Pack tightly.

picture146

Tissue Paper or Cotton

HOW TO USE:

Method I - When ordinary grenade is used:

1. Load cartridge in gun.

2. Push end of push -rod without the rubber disk into hole in wooden block fastened to grenade

66

3. Slowly push rod into barrel until it rests againat the cartridge case and grenade is in can. If the grenade is not in the can, remove rod and cut to proper size. Push rod back into barrel.

Grenade

picture147

4. With can holding safety lever of grenade In place, carefully remove

aalety pin.

CAUTION: Be aure that the aides of the can restrain the grenade safety lever. If the safety lever should be released for any reason r grenade will explode sfter regular grenade delsy time.

5. To fire grenade launcher, rest gun in ground at angle-determined by range desired. A 45 degree angle should give about 150 meters <1G0 yds.)

■

Method U - when improvised pipe grenade is used:

An improvised pipe grenade (Section U, No. 1) may be launched in a similar manner. No tin can is needed.

Wooden Block

picture148

'Pipe Grenade

1. Fasten the grenade to the block as shown above with the fuse hole st the end opposite the block.

2. Push end of push-rod into hole in wooden block fastened to grenade

3. Push rod into barrel until it rests againat cartridge case.

69

4. Load cartridge in gun.

5. Follow step 5 of Method I.

6. Using a fuse with at least a 10 second delay. light the fuse before firing.

7 Fire when the fuse burns to 1/2 its original length.

70

Sectioa IV

GRENADE LAUNCHER~(37 MM CARDBOARD CONTAINER)

An improvised method of launching a standard grenade 130 yds. (133 meters* or an improvised grenade 90 yds. i81 meters) using a discarded cardboard ammunition container.

MATERIAL REQUIRED :

Heavy cardboard container with inside diameter of 2-1 '2 to 3 in.

(3-1/2 to ft cm) and at lcasrtS in. 130 cm) long (ammunition

container is suitable) Black powder • H grams (124 grains) or leas Safety or improvised fuse (Section VI, x«. ?|

Grenade (Improvised hand grenade. Section II, Xo. I may be used) Rag, approximately 30 in. x 24 in. (73 cm .\ 60 emi Paper

picture149

PROCEDURE : METHOD I - If Standard Grenade is Used.

Top of Container

I. Discard lop of container.

Make small hole in bottom.

Hole

picture150

2. Place black powder in paper Tic end with string so contents cannot fall out. Place package In container.

•3. Insert rag wadding into container. Pack tightly with CAUTION

4. Measure off a length of fuse that will give the desired delay. Thread this through hole in bottom of container so that it penetrates into the black powder package.

picture151

picture152

Fuse

Black Powder Package

picture153

Rag Wadding

NOTE: If improvised fuse is used, be sure fuse fits loosely through hole in bottom of container.

Fuse

Rag Wadding

3. Hold grenade safety lever and-carefully withdraw safety pin from grenade. Insert grenade into container, lever end first.

picture154

Black Powder Package

Grenade

CAUTION: If grenade safety lever should be released for any grenade will explode after normal delav time.

6. Bury container about « In. (13 cm) in the ground at 30' angle, bringing fuse up alongside container. Pack groundJigblly around container.

picture155

picture156

CAUTION: The tightly packed dirt helps to hold the tube together during the firing. Do not fire unleae at least the bottom half of the container la buried in solidly packed dirt.

METHOD I! - If improvised Pipe Hand Grenade is Used. I. Follow step I of above procedure.

2. ilea §u re off a piece of fuse at least at long as the cardboard eoa-taincr. Tape one end of this to the fuse from the Masting cap in the improvised grenade. Be aure ends of fuse arc in contact with each other.

Tin can, about 4 ia. (10 cm) In diameter and 5-1/2 la. (14 cm) high Wood, about 3 ia. x 3 in. x 2 la. 47-1/2 cm x 7-1/2 era x 5 cm) Nail, at least 3 ia. (7-1/2 era) long

Nuts and bolts or nails, at least 2-1/2 in. (6-1/2 cm) Long Rag Paper Drill If standard Shotgun la Used:

Hard wood stick, sbout the same length aa shotgun barrel and about

5/8 in. (1-1/2 cm) in diameter. Stick need not be round. 2 washers (brass, steel, iron, etc.) having outside diameter of 5/8

in. (1*1/2 cm) One wood screw about 1 in. (2-1/2 cm) long Rubber disk, 3/4 in. (2 cm) In diameter and 1/4 in. (8 mm) thick,

leather, cardboard, etc. can be used. 13 gauge shotgun ammunition

If Improvised Shotgun ia Used: Fuse, safety or improvised fast burning (Section VI, No. 7) Hard wood stick, about the aame length aa shotgun barrel and 3/4

In. (2 cm) in diameter Black powder - 9 grams (135 grains). See Section VII. No. 8.

7k

PROCEDURE :

Fuse Connected to Blasting Cap In Grenade

picture157

Fuse

Tape 3. Place free end of fuse and black powder on piece of paper. Tie

with string so contents will not fall out.

 picture158

Black Powder

Tape

4. Place package in tube. Insert rag wadding. Pack so It fits snugly. Place pipe hand grenade into tube. Be sure it fits snugly.

Cardboard Container

 picture159

Black Powder Package

5. Insert fuse through hole ia end of cardboard container. Be sure it goes into black powder package.

NOTE: Cardboard container may be used for only one firing.

fi. Follow atep 8 of Method I.

Rag Wadding

 picture160

Fuse

Black Powder Package

Pipe Hand

HOW TO USE :

Light fuse when ready to fir*.

—» Section IV

73 No. 4

FIRE BOTTLE LAUNCHER

A device using 2 item* (shotgun and chemical fire bottle) that caa be used to atari or place a fire 80 yarde (72 raetera) from launcher.

MATERIAL REQUIRED :

Standard 12 gauge or improvised shotgun (Section III, No. 2)

Improvised fire bottle (Section V, No. 1)

METHOD I - If Improvised Shotgun is Used:

1. Drill hole In center of wood block approximately 1 la. (2-1/2 em) deep. Hole should have approximately the

same diameter as the wooden stick.

2 Small Holes

2. Drill 2 small holes on opposite aides of ths wooden block. Hole should be large enough for bolts to pass through.

3. Fasten caa to block with nuts and bolts.

NOTE: Caa may also be securely buttoned to block hy hammering several nails through can and Mock. Do not drill holes, and be careful not to split wood.

4. Place wooden stick into hole In wooden block. Drill small hole (same diameter aa that of 3 in. nail) through wooden block and through wooden atick. Insert nail in hole.

Wooden Stick

can

picture161

5. Crumple paper and place in bottom of can. Place another piece of paper around fire bottle and insert in can. L'se enough paper so that bottle will fit snugly.

picture162

Crumpled Paper

Paper

POOR MAN'S JAMES BOND Vol. 2

304

IMPROVISED MUNITIONS

«. Place safety fuse and black

PO*der on paper, Tie each end with siring.

picture163

picture164

li ,h T . hr " d c*** throUgh h ° Ie in Plu »* Wtw P**r package in of shotgun. Screw plug finger dght lnto COuphng> ** ****

NOTE: Hole in plug may have to be enlarged for fuse.

Black Powder Pipe^Piug Package

Safety Fuse

rear

picture165

i. Insert rag into front of shotgun. P»ck rag against powder package with stick. USE CAUTION ^^ P»caage

METHOD n - If Standard Shotgun is Usad -

1. Follow Steps 1 and 2, Shotgun Grenade Lsuncher. Section IV. No. 2.

2. Follow procedure of Method 1. Steps 1 - s,

3. Follow Step, 9 10 u. Shotgun Grenade Launcher, Section IV. . No. 2, using 1/3 of total propellant Instead of 1/2.

4. Load cartridge in gun.

HOW TO USE :

1. Insert stick and holder containing chemical fire bottle. I CAUTlONTDono^iinnuzJlsTownwardrj

Safety Fuse »"•«««•

picture166

2. Hold gun against ground at 45* angle and light fuse.

picture167

Safety Fuse

NOTE; Steps 1 and2, "HOW TO USE,' *f* same for both standard and improvised

shotguns.

picture168

CAUTION: Severe bums may result if bottle shatters when iired. if possible, obtain a bottle Identical to that being used as the fire bottle

Fill about 2/3 full of water and fire aa above. If bottle shatters when fired inatead of being launched Intact, use ■ different type of bottle.

Section IV 77 No. 5 GRENADE LAUNCHERS

A variety of grenade launchers can be fabricated from metal pipes and fittings. Ranges up to 600 meters {660 yards) can be obtained depending on length of tube, charge, number of grenades, and angle of firing.

MATERIAL REQUIRED :

Metal pipe, threaded on one end and approximately 2-1/2 in. (6-1/4 cm) in diameter and 14 in. to 4 ft. <35 cm to 119 cm) long depending on range desired and number of grenades used.

End cap to fit pipe

Black powder, 13 to 50 gm, approximately 1-1/4 to 4-1/4 tablespoons (Section I, No. 3)

Safety fuse, fast burning improvised fuse (Section VI, No. 7) or

improvised electric bulb initiator (Section VI, No. l Automobile light bulb is needed)

Grenade(s) - 1 to 6

Rsg(s) - about 30 in. x 30 in. (75 cm x 75 cm) and 20 in. x 20 in.

(55 cm x 55 cm) Drill String

NOTE; Examine pipe carefully to be sure there are no cracks or other

flaws.

PROCEDURE :

METHOD I- If Tub* is Used:

1. Drill small hole through center of end cap.

End Cap

2. Make small knot near one end of fuse. Place black powder and knotted end of fuse in paper and tie with string.

picture169

Hole

Fuse

String

Black Powder

3. Thread fuse through hole in end cap and place package in end cap. Screw end cap onto pipe, being care ful that black powder package is not caught between the threads.

4. Roll rag wad so that it is about 6 in, (IS cm) long and has approximately the same diameter as the pipe. Push rolled rag into open-end of pipe until it rests against black powder package.

5. Hold grenade safety lever In place and carefully withdraw safety pin.

picture170

Fuse

Black Powder Package

picture171

[

CAUTION: If grenade safety lever is released for any reason, grenade will explode after regular time. (4-5 aec.) _^_^_____^_

6. Holding safety lever in place, carefully push grenade into pipe, lever end first, until it rests against rag wad.

picture172

7, The following table lists various types of grenade launchers and their performance characteristics.

FIRING

ANGLE

30*

lose 3<r

(a) For this range, an additional delay is required. See Section VI, No. IX and 12.

(b)

For multiple grenade launcher, load as shown.

NOTE: Since performance of different black powder varies, fire several test rounds to determine the exact amount of powder necessary to achieve the desired range.

Stuffed Rag Black Powder

(20 x 20) Package

picture173

Grenade HOW TO USE:

Grenade

Rolled Rag (30 X 30)

1, Bury at least 1/2 of the launcher pipe in the ground at desired ingle.. Open end should face the expected path of the enemy. Muzzle may be covered with cardboard and a thin layer of dirt and/or leaves aa camouflage. Be sure cardboard prevents dirt from entering pipe.

Grenade

A £ ^ Launcher

Fuse

 picture174

Cardboard and Leaves

NOTE: The 14 in. launcher may be hand held against the ground instead of being buried.

 picture175

2. Light fuse when ready to fire.

METHOD II - If Electrical Igniter is Used:

NOTE: Be aure that bulb is in good operating condition.

1. Prepare electric bulb initiator as described in Section VI, No. 1.

2. Place electric initiator and black powder charge in paper. Tie ends of paper with string.

 picture176

Connecting Wires

3. Follow above Procedure, Steps 3 to end.

HOW TO USE :

1. Follow above How to Use, Step 1.

2. Connect leads to firing circuit. Close circuit when ready to fire.

Section IV

81 No. 6 60 MM MORTAR PROJECTILE LAUNCHER

A device to launch 60 mm mortar rounds using a metal pipe 2-1/2 in. (6 en) in diameter and 4 ft. (120 cm) long as the launching tube.

Mortar, projectile <60 mm) and charge increments

Metal pipe 2-1/2 in. (6 cm) in diameter and 4 ft. <120 cm) long, threaded

on one end Threaded end cap to fit pipe

Bolt, 1/8 in. (3 mm) in diameter and at least 1 in. (2-1/2 cm) long Two <2) nuts to fit bolt File Drill

PROCEDURE; _ End

1. Drill hole 1/8 in. (3 mm) in

diameter through center of end IlrIp ^. \

cap.

2. Round off end of bolt with file

picture177

picture178

picture179

Nut

3, Place bolt through hole in end cap. Secure in place with nuts as illustrated.

Fuse

4. Screw end cap onto pipe tightly. Tube la now ready for

82

picture180

■flt

35

=1

POOR MAN'S JAMES BOND Vol, 2

306

IMPROVISED MUNITIONS

HOW TO USE :

1. Bury launching tuba la ground at desired angle ao that bottom of tube is at leaat 2 ft. (60 cm) underground. Adjust the number of increments in rear

finned end of mortar projec- ,•

tile. See following table for launching angle and number of increments used.

Launching

Tube

 picture181

Section V 81i No. I CHEMICAL FIRE BOTTLE

This incendiary bottle is self -igniting on target impact.

Finned End

2. When ready to fire, withdraw safety wire from mortar projectile. Drop projectile Into launching tube, FINNED END FIRST.

Safety Wire

 picture182

 picture183

MATERIALS REQUIRED How Used

Sulphuric Acid Storage Batteries Gasoline Motor Fuel

Charge Increments

Mortar Projectile

CAUTION: Be sure bore riding pin is In place In fuse when mortar projectile Is dropped Into tube. A live mortar round could explode in

the tube if the fit Is loose enough to permit the bore riding pin to come out partway.

 picture184

Common Source

Motor Vehicles Gas Station or Motor Vehicles Drug Store Food Store

Potassium Chlorate Medicine

Sugar Sweetening Foods

Glass bottle with stopper (roughly 1 quart size). Small Bottle or jar with lid. Rag or absorbent paper (paper towels, newspaper). String or rubber bands. PROCEDURE

l - Sulphuric Acid Must be Concentrated . If battery acid or other dilute acid is used, concentrate it by boiling until dense white fumes are given off. Container used should be of enamel-ware or oven glass.

CAUTION

Sulphuric acid will burn skin and destroy clothing. If any is spilled, wash it away with a large quantity of water. Fumes are also dangerous and should not be

inhaled.

2. Remove the acid from heat and allow to cool to room temperature.

85

proxLJtTy'zXtt lnt ° thB U '« e " ***> bo " le mtU «* ta ">-

5 * ^»»n the outside of the bottle thorough ly with clear water.
CAUTION

t« h^H h , iS J* ^ done ' tHe flrC b ° ttle m *V b * dangerous to handle during use.

Gasoline & Cap

6. Wrap a clean cloth or several A . Su * phuric Acid

sheets of absorbent paper around Ab8orb *«t Paper^ the outside of the bottle. Tie with String

string or fasten with rubber bands.

picture185

MnA° l "i 01 ** UZ CUP (10 ° gm) of P° U88iuf " chlorate and 1/2 cup (100 gm) of sugar in one cup (250 cc) of boiling water

cat, t! fl ht^ IO TK he 80 ! U i ion T to c ° 01 ' P°" *»"> the small bottle and

111 i /\ I J « 2 ■° 2Ution 8h ° U,d °« *" rox * Z '> "V'als

£*.»li? CrC U m ° rC Uquid th4n thU * P° ur off excess

tjciorc using.

CAUTION

Store this bottle separately from th

picture186

POOR MAN'S JAMES BOND Vol. 2

307

IMPROVISED MUNITIONS

HOW TO USE

picture187

1. Shake the •mall bottle to mix contents and pour onto the cloth or paper around the large bottle.

Bottle can be used wet or after solution has dried. However, when dry, the sugar - Potassium chlorate mixture is very sensitive to spark or flame and should be handled accordingly.

2. Throw or launch the bottle. When the bottle breaks against a hard surface (target) the fuel will ignite.

Section V

66 No. 2

IGNITER FROM BOOK MATCHES This

is a hot igniter made from paper book matches for

use with molotoy cocktail and other incendiaries.

Use With Molotov Cocktail

Tape the "match end tab' of the igniter to the neck of the (molotov cocktail.

0JiX*AJCf<

picture188

Grasp the "cover end tab" and pull sharply or quickly to ignite.

General Use

The book match igniter can be used by itself to ignite flammable liquids, fuse cords and similar items requiring hot ignition.

Material Required

Paper book matches. Adhesive or friction tape

Procedure

I, Remove the staple(s) from match book and separate matches from cover.

2. Fold and tape one row of

matches.

picture189

CAUTION

Store matches and completed igniters in mois-tureproof containers such as rubber or plastic bags until ready for use. Damp or wet paper book matches

will not ignite.

iB

picture190

3. Shape the cover into a tube with striking surface on the inside and tape. Make sure the folded cover will fit tightly around the taped match heads. Leave cover open at opposite end for insertion of the matches.

4. Push the taped matches into the tube until the bottom ends are exposed about 3/4 in. (2 cm).

87

5. Flatten and fold the open end of the tube so that it laps over about 1 in. (2-1/2

cm); tape in place.

picture191

picture192

Section V

88 No. 3 MECHANICALLY INITIATE^ FIRE BOTTLE

The mechanically initiated Fire Bottle is an incendiary device Which ignites when thrown against s hard surface.

MATERIALS REQUIRED

Glass jar or short neck bottle with s leakproof lid or stopper.

"Tin" can or similar container just large enough to fit over the lid of the jar.

Coil spring (compression) approximately 1/2 the diameter of the can and 1 1/2 times as long.

Gasoline

Four (4) "blue tip" matches

Flat stick or piece of metal (roughly 1/2" x 1/io" x 4")

Wire or heavy twine

Adhesive tape

picture193

PROCEDURE

1. Draw or scratch two lines around the can - one 5/4" (19 mm) and the other 1 1/4" (30 mm) from the open end.

picture194

2. Cut 2 slots on opposite sides of the tin can at the line farthest from the open end. Make slots large enough for the flat stick or piece of metal to pass through.

picture195

■'•

Slot

3. Punch 2 small holes just below the rim of the open end of the can.

picture196

Holes

9. Fill the jar with gasoline and cap tightly

10. Turn can over and place over the jar so that the safety stick rests on the lid of the jar.

91

4. Tape blue tip matches together in pairs. The distance between the match heads should equal the inside diameter of the can. Two pairs are sufficient.

Spring -*

5. Attach paired matches to second and third coils of the spring, using thin wire.

Matches

6. Insert the end of the spring opposite the matches into the tin can.

90

7. Compress the spring until

the end with the matches passes

the slot in the can. Pass the

flat stick or piece of metal Matches

through slots in can to hold

spring in place. This acts as

a safety device.

picture197

11. Pass wire or twine around the bottom of the jar. Thread ends through holes in can and bind tightly to jar.

12. Tape wire or cord to jar near the bottom.

HOW TO USE

picture198

Safety

8. Punch many closely spaced small holes between the lines marked on the can to form a striking surface for the matches. Be careful not to seriously deform can.

picture199

1. Carefully withdraw flat safety stick.

2. Throw jar at hard surfac

CAUTION:

SSJJfJ R = MOVE SAFETY STICK UNTIL READY TO THROW FIRE BOTTLE.

•?■/■*? V iCk ' Wh€n in pUce ' P^vent. ignition of the fire bottle if it should accidentally be broken.

qO Section V

7t No. 4

CELLED FLAME FUELS

lisJ 3 fnr*«.° r P ** te ^ fucU * re often preferable to raw **,o greater heat concentration. ««««*«»

Several methods are shown for gelline Baseline ».in-

4.1 Lye Sy*terns

4.2 Lye-Alcohol Systems

4.3 Soap-Alcohol Systems

4.4 Egg White Systems

4.5 Latex Systems

4.6 Wax Systems

Q ^Section V y> No. 4.1 GELLED FLAME FUELS

LYE SYSTEMS Lye {also known ai caustic soda

or Sodium Hydroxide) can be used in combination with powdered rosin or castor oil to gel gaso line for use as a flame fuel which will adhere to target surfaces.

NOTE : This fuel is not suitable for use in the chemical (Sulphuric AcioTtype of fire bottle {Section V, No.l). The acid will react with the lye and break down the gel.

MATERIALS REQUIRED:

Ethyl Alcohol Whiskey

Medicine

Liquor store ' Drug store

NOTE: Methyl (wood) alcohol or isopropyl (rubbing) alcohol can be substituted for ethyl alcohol, but their use produces softer gels.

14 Tallow Food Fat rendered by

Making of soap cooking the meat or

suet of animals.

NOTE: The following can be substituted for the tallow:

(a) Wool grease (Lanolin) (very good) « Fat extracted from

sheep wool.

(b) Castor oil (good).

(c) Any vegetable oil (corn, cottonseed, peanut, linseed, etc.) (d> Any fish oil

(e) Butter or oleomargarine

Parts by

Volume

60

Ingredient Gasoline

How Used

Motor fuel

Commonj>qurce

Gas station or

motor vehicle

2 (flake) or Lye 1 (powder)

15

Rosin

or

Drain cleaner. Food store making, of Drug store

soap

Manufacturing Naval stores Paint U Varnish Industry

Castor Oil Medicine PROCEDURE:

Food and Drug Stores

f CAUTION: Make sure that there are no open flames when mixing the flame fuel. NO SMOKING! in the area .__^_

1. Pour gasoline into jar, bottle or other container.

(DO NOT USE AN ALUMINUM CONTAINER.)

2. If rosin is in cake form, crush into small pieces.

3. Add rosin or castor oil to the gasoline and stir for about five (5) minutes to mix thoroughly.

It is necessary when using substitutes (c) to (e) to double the given amount of fat and of lye for satisfactory bodying.

PROCEDURE:

CAUTION: Make sure that there are no open flames in the area when mixing flame fuels. NO SMOKING!

■SSSaBBBBSBBBBSBSSSSSSSSBBBBBBBBBBBBSBBBBBBSMMMg Willi I II

1. Pour gasoline into bottle, jar or other container. (DO NOT

USE AN ALUMINUM CONTAINER).

2. Add Tallow (or substitute) to the gasoline and stir for about 1/2 minute to dissolve fat. .£

3. Add alcohol to the gasoline mixture.

4. In a separate container (NOT ALUMINUM) slowly add lye to an equal amount of water. Mixture should be stirred constantly while adding lye.

I CAUTION: Lye solution can burn skin and destroy clothing. If any is spilled, wash away immediately with large quantities of water.

5. Add lye solution to the gasoline mixture and stir occasionally until thickened (about 1/2 hour).

NOTE: The mixture will eventually (1 to 2 days) thicken to a

very arm paste. This can be thinned, if desired, by stirring in

additional gasoline. Section V

4. In a second container (NOT ALUMINUM) add lye to an equal 95 jf Q " *

volume of water slowly with stirring. GELLED FLAME FUELS

I ^AUTION: Lye s I any is spilled, w;

olution can burn akin and destroy clothing. If wash away immediately with large quantities of water.

1

SOAP-ALCOHOL SYSTEM

5. Add lye solution to the gasoline

mix and stir until mixture thickens (about one minute). NOTE: The sample

will eventually thicken to a very firm paste. This can

be thinned, if desired, by stirring in additional gasoline.

Qi Section V "** No. 4.2

CELLED FLAME FUELS

LYE-ALCOHOL SYSTEMS

Common household soap can be used in combination with alcohol to gel gasoline for use as a flame fuel which will adhere to target surfaces.

MATERIAL REQUIRED:

Parts by

Volume

36

Lye (also known as caustic soda or Sodium Hydroxide) can be used in combination with alcohol and any of several fats to gel \ gasoline for use as a flame fuel.

Ingredient Gasoline

Ethyl Alcohol

How Used

Motor fuel

Common Sourc e

Gas station, Motor vehicles

Liquor store Drug store

NOTE: This fuel is not suitable for use in the chemical (Sulphuric Acid) type of fire bottle (Section V, No, 1). The acid will react with the lye and break down the gel.

MATF.RIALS REQUIRED:

Whiskey Medicine NOTE: Methyl (wood) or isopropyl (rubbing)

alcohols can be substituted for the whiskey.

Washing

clothes

Stores

Part« by

Volume

60

Gasoline

How Used

Motor fuel

Common Source

Gas station or motor vehicles

2 (Hake) or Lye 1 (powder)

Drain cleaner Food store Making of soap Drug store

20 (pow- Laundry soap dered) or 28 (Hake)

NOTE: Unless the word "soap" actually appears somewhere on the container or wrapper, a washing compound is probably a detergent. These Can Not Be Used.

PROCEDURE :

CAUTION: Make sure that there are no open flames in the area when mixing flame fuels. NO SMOKING! '

POOR MAN'S JAMES BOND Vol. 2

310

IMPROVISED MUNITIONS

1. If bar soap is used, carve into thin flakes using a knife, 2. Pour egg white into ajar, bottle, or other container and add

2. Pour alcohol and gasoline into ajar, bottle or other con,MoUn *"

tainer and mix thoroughly. » ...^ .„ . .. a „.

• ' *• Add the salt (or other additive) to the mixture and stir

3. Add soap powder or flake, to gasoline-alcohol mix and «£?****-** UfttU « el forma Ubout * to 10 minutes).

occaiinnallu until tVirks>Ma#l /^Unt it *-*;«...*««% ..

occasionally until thickened (about 15 minutes).

-^Section V

71 No. 4.4 CELLED FLAME FUELS

EGG SYSTEMS

The white of any bird egg can be used to gel gasoline for use as a flame fuel which will adhere to target surfaces.

MATERIALS REQUIRED:

Parts by

Volume

■5

14

Ingredient Gasoline

Egg Whites

How Used

Motor fuel Stove fuel Solvent

Food

Industrial pro cesses

Common Source

Gas station Motor vehicles

Food stors Farms

Any One Of The Following:

1

Table Salt

Food

Industrial pro cesses

Ground Coffee Food

1

Dried Tea Leaves

Cocoa

Sugar

Saltpeter (Niter)

(Potassium Nitrate)

Epsom salts

Food

Food

Sea water Natural brine Food store

Coffee plant Food store

Tea plant Food store

Cacao tree Food store

Sweetening foods Sugar cane Industrial pro- Food store cesses

Pyrotechnics Explosives Matches Medicine

'Medicine Mineral water Industrial processes

Natural Deposits Drug store

Natural deposits Kieserite Drug store Food store

Washing soda (Sal soda)

1 1/2 Baking Soda

shing cleaner Food store

11/2 Aspirin

PROCEDURE;

W

Medicine

Photography

98

Baking

Manufacture of: Beverages, Mineral waters and Medicines

Medicine

Drug store

Photo supply store

Food store Drug store

Drug store Food store

[CAUTION: Make

■en mixing flame fuels. NO SMOKING!

• ure that there are no open tlames an the

NOTE: A thicker gelled flame fuel can be obtained by putting the capped Jar in hot (65'C) water for about 1/2 hour and then lotting them cool to room temperature. (DO NOT HEAT THE GELLED FUEL CONTAINING COFFEE).

^ Section V 99 No. 4.5 GELt£D FLAME FUELS

LATEX SYSTEMS

Any milky white plant fluid ie a potential source of latex which can be used to gel gasoline

MATERIALS REQUIRED:

Ingredient How Used

Gasoline

Latex.

commerical or natural

Motor fuel Solvent

Paints

Adhesives

One of the Following Acids:

Acetic Acid (Vinegar)

Sulfuric Acid (Oil of Vitriol)

Salad dressing Developing film

Common Source

Gas station Motor vehicle

Natural from tree or plant

Rubber cement

Food stores Fermented apple elder Photographic aupply

Storage batteries Motor vehicles Material processing Industrial plants

Hydrochloric Acid (Muriatic Acid)

Petroleum w«lU Hardware store Pickling snd metal Industrial plants cleaning

Industrial processes ^ T eM„ 1 /H C f d, .K r T t * v * iUb, «- — "id ..It (alum. .„«„.,

PROCEDURE;

[when mixing flame fuels. NO SMOKING! 1. With Commercial Rubber Latex:

«f -.■.-.« ,C t '*W *>y volume of latex and 92 parti by volume of ga.olin.ln bottle. Cap bottle and .hake to mix well*

wJSk rtftifi? ^ V ° ,U ~ Vi ~«* r (< " °*« r ~ ld » "* *—

CAUTION: Concentrated acids will burn skin and destroy <

clothing. If any is spilled, wash away immediately with larce quantities of water. * '

2. With Natural Latex

100

In. ««*fnYo r£.? hi !!. f,om jtf k - ™« c *» be done by breaking the egg into a dish and carefully removing the yolk with a sp oon.

Karl™ *£ WHITE " U e " y ° ,k ••«• int * »* •« «""J

a. Natural latex should form lumps as it comes from the plant. If lumps do not form, add a small amount of acid to the

latex.

b. Strain off the latex lumps and allow to dry in air.

c. Place 20 parts by volume of latex in bottle and add B0 parts by volume of gasoline. Cover pottle and allow to stand until a swollen gel mass is obtained (2 to 3 days).

XUi No. 4.6

GELLED FLAME FUELS

WAX SYSTEMS tSf^ttET: J.*""?" !" »"* * Prt ■-«- for

» a. a flame fuel which wina^ere' S^TfcC

POOR MAN'S JAMES BOND Vol. 2

311

IMPROVISED MUNITIONS

30

Animal blood Scrum

MATERIALS REQUIRED:

Any one of the following:

Parts by

Volume

80

Salt

Ingredient

Gasoline

How Used

Motor fuel Solvent

Common Source

Cat station Motor vehicle*

Any one of the following:

20

Ozocerite Mineral wax Fob ail wax Cere sin wax

Leather polish Natural deposits

Beeswax

Sealing wax* Candles Crayons Waxed paper

Textile sizing

Furniture and floor waxes

Artificial fruit and flowers

Lithog r aphin g

Wax paper

Textile finish

Candles

General stores Department store

Dried Tea Leaves

Sugar

Honeycomb of bee

General store Department store

Lime

Bayberry wax Candles

Myrtle wax

Soaps Leather polish

Medicine

PROCEDURE:

Natural form Myrica berries General store Department store

Drug store

Baking soda

1. Obtaining wax from Natural Sources: Plants and berries, are potential sources of natural waxes. Place the plants and/or berries in boiling water. The natural waxes will melt.

Let the water cool. The natural waxes will form a solid layer on the water surface. Skim off the solid wax

and let it dry. With natural waxes which have suspended matter when melted, screen the wax through a cloth.

Epsom salts

PROCEDURE:

Food

Medicine

Slaughter House Natural habitat

Food Sea Water -

Industrial pro- Natural brine cesses Food store

Ground Coffee Food

Caffeine source Beverage

Food Beverage

Coffee plant Food store

Tea plant Food store

Sweetening foods Sugar cane Industrial pro- Food store cesses

Mortar

Plaster Medicine Ceramics Steel making Industrial processes

Baking Beverages Medicine Industrial processes

Medicine Mineral water

Industrial processes

From calcium carbonate Hardware store Drug store Garden supply

Store

Food store Drug store

Drug store Natural deposits Food store

2. Melt the wax and

pour into jar or bottle which has been placed in a hot water bath.

3. Add gasoline to the bottle.

4. When wax has

completely dissolved in the gasoline, allow the water bath to cool slowly to room temperature.

NOTE: If a gel does not form, add additional wax (up to 40% by volume) and repeat the above steps. If no gel forms with 40% wax,

make a Lye solution by dissolving a small amount of Lye (Sodium H>droxide) in an equal amount of water. Add this solution (1/2% by volume) to the gasoline wax mix and shake bottle until a gel forma.

Section V 102 No. 4. 7 GELLED FLAME FUELS

1. Preparation of animal blood serum:

a. Slit animal's throat by jugular vein. Hang-up-side down to drain.

b. Place coagulated (lumpy) blood in a cloth or on a screen and catch the red fluid (serum) which drains through.

c. Store in coot place if possible.

CAUTION: Do not get aged animal blood or the serum into an open cut. This can cause infection*,

2. Pour blood serum into jar. bottle, or other container and add gasoline.

3. Add the salt (or other additive) to the mixture and stir until a gel forma. Section V

10k No. S

ACID DELAY INCENDIARY

This device will ignite automatically after a given time delay.

ANIMAL BLOOD SYSTEMS

MATERIAL REQUIRED: Animal blood can be used to gel gasoline rbr use as a flan* e fuel which will adhere to target surfaces.

MATERIAL REQUIRED:

Parts

by Volume

68

ngrcdient

Gasoline

Small jar with cap Cardboard Adhesive tape

Common Source Potassium Chlorate

' Sugar

Motor fuel Gas station Sulphuric Acid (Battery Acid)

How Used

Solvent

Motor vehicles Rubber sheeting (automotive inner tube)

picture200

POOR MAN'S JAKES BOND Vol. 2

312

IMPROVISED MUNITIONS

PROCEDURE :

I. Sulphuric acid muat

be concentrated. If battery acid or other dilute acid is used, concentrate it by boiling. Container used should be of enamelware or oven glass. When dense white fumes begin to appear, immediately remove the acid from heat and allow to cool to room temperature.

CAUTION; Sulphuric acid will burn skin and destroy clothina any is spilled, wash it away with a large quantity of water. F are also dangerous and should not be inhaled.

iMw° R , TAN > T: w a»h outside of jar thoroughly with clear water, ix this la not done, the jar may be dangerous to handle during use

HOW TO USE ;

1. Place the tube containing the Sugar Chlorate crystals on an incendiary or flammable material taped end down.

2. Turn the jar of sulphuric acid cap end down and slide it into the open end of the tube.

picture201

2. Dissolve one part by volume of Potassium Chlorate and one part by volume of sugar in two parts by volume of boiling water.

3. Allow the solution to cool. When crystals settle, pour off and discard the liquid. m ^ jar

4. Form a tube from cardboard just large enough to fit around the outside of the jar and 2 to 3 times the height of the jar. Tape one end of the tube closed.

picture202

picture203

lv', : : : ; "--<:l

JAR WITH SULPHURIC ACID

TUBE OF

SUGAR CHLORATE

INCENDIARY OR

FLAMMABLE MATERIAL

CARDBOARD

POTASSIUM

CHLORATE

5. Pour wet Potassium Chlorate S UGAR sugar crystals into the tube until it is about 2/3 full. Stand the tube aside to dry.

CARBOARD

TUBE

6. Drill a hole through the cap of the jar about 1/2 inch (1 1/4 cm)

in diameter.

picture204

After a time delay, the acid will eat through the rubber disc and ignite the sugar chlorate mix. The delay time depends upon the thickness and type of rubber used for the disc. Before using this device, tests should be conductei determine the delay time that can be expected.

ni9rLui p ** m t ? «*nd*rd automobile inner tube (about 1/32" lh4Ck> wlU P rovid * * «***y time of approximately 45 minute•?

Section VI 106 No. 1

ELECTRIC BULB INITIATOR light or automobile electric light bulb.

JAR

LID

7. Cut a disc from rubber sheet so that it just fits snugly inside the lid of the jar.

RUBBER SHEET

picture205

MATERIAL REQUIRED Bulb Bas

Electric light bulb and

mating socket Cardboard or heavy paper Black Powder Adhesive tape

PROCEDURE

Method I

picture206

Filament

Black Powder

Cardboard Tube

Cap or Tape

8. Partly fill jar with water, cover with rubber disc and cap tightly with the drilled lid. Invert bottle and allow to stand for a few minutes to make sure that there are no leaks. THIS IS EXTREMELY IMPORTANT.

9. Pour water from jar and fill about 1/3 full with concentrated iulphuric acid. Replace the rubber disc and cap tightly.

picture207

picture208

CAP

RUBBER

DISC

SULPHURIC

ACID

1. Break the glass of the electric light bulb. Take care not to damage the filament. The initiator will NOT work if the filament is broken. Remove all glass above the base of the bulb.

2, Form a tube 3 to 4 inches long from cardboard or heavy paper to fit around the base of the bulb. Join the tube with adhesive tape.

picture209

*

3. Fit the tube to the bulb b and tap* in place.

Filament

Make sure that the tube d not cover that portion of the bulb base that fit* into the socket.

picture210

4. If no eocket ie available for connecting the initiator to the firing circuit, solder the connecting wires to the bulb bass.

CAUTION? Do NOT use a hot soldering iron on the completed

_£a>-*Jft^« ■la*, i* _*». 1—U. *C_-

Bulb Base

picture211

Cardboard

/ Tube Material Required

Tape

107

Paper book matches. Adhesive or friction tape. Fuse cord (improvised or

commercial). Pin or small nail.

 picture212

Procedure

1* Remove the staple(s) from match book and separate matches from cover.

 picture213

rvH C9"9

A

POOR MAN'S JAMES BOND Vol. 2

314

IMPROVISED MUNITIONS

8. Push pin or small nail through matches and fuse cord. Bend end of pin or nail.

Method of Use

To light the fuse cord, the igniter is held by both hands and pulled sharply or quickly.

 picture214

CAUTION

 picture215

 picture216

to iDcimti'

Store matches and completed fuse igniters in moistureproof containers such as plastic or rubber type bags until ready for use. Damp or wet paper book matches will not ignite. Fuse lengths should not exceed 12 in. (30 cm) for easy storage These can be spliced to main fuses when needed.

jT»—W*>» *•»• mf MMas I

3. Position the burning cigarette with fuse so that it burn, freely. A suggested method is to hang the delay on

NOTE

Common dry cigarettes burn about 1 inch every 7 or 8 mmutes in -till air. If the fuse cord is placed 1 inch from the burning end of a cigarette a time delay of 7 or 8 minute, win result.

Delay time will vary depending upon type of cigarette, wind, moisture, and other atmospheric condition..

To obtain accurate delay time, a test run should be

made under "use" conditions.

Section VI

110 No. 3

DEJ-AY IGNITER FROM CIGARETTE

A simple and economical time delay can be made with a common cigarette.

\

* -

A time delay device for use with electrical firing circuits can be made by using a watch with a plastic crystal.

miTiftt**

„. Section VI WATCH DELAY TIMER

 picture217

Materials Required

Cigarette.

Paper match.

String (shoelace or similar cord).

Fuse cord (improvised or commercial).

Procedure

CUT SO INNER CORE IS EXPOSED

 picture218

f-V¥ I

\

 picture219

1. Cut end of fuse cord to expose inner core,

»ATCM

picture220

Material and Equipment Required

Watch with plastic crystal. Small clean metal .crew. Battery.

Connecting wires. Drill or nail. Procedure

1. If watch ha. a .weep or large second hand, remove it. If delay time of more than one hour is required, also remove the minute hand. If hand, are painted, carefully .crape paint from contact edge with Imife.

rust cos.

2. Drill a hole through the

crystal of the watch or

pierce the cry.tal with a

-> .. , (. heated nail. The hole mu.t

2. Light cigarette in normal fashion. Place a paper be small enough that the

»e both t^hl ^ ""Til!* u Ver eXP< ^ d ^ ° f fU " " rd "* J « eW Cto be t£ « htl r threaded tie both to the side of the burning cigarette with string. into it.

picture221

POOR KAN'S JAlVES BOND Vol. 2

315

IMPROVISED MUNITIONS

picture222

2. Drill hole completely through the center of the plug and cap large enough that the nail fits

loosely.

3. Place the screw in the hole

and turn down as far as

possible without making

contact with the face of the

watch. If screw has a pointed

tip, it may be necessary to

grind the tip flat. 3. Enlarge the hole in the plug

except for the last 1/8 in. (3 mm) •o that the fuse cord will just fit.

If no screw is available, pass a bent stiff wire through

the hole and tape to the crystal.

picture223

DRILL

DIAMETER OF FUSE CORD

1/8 in.

PIPE PLUG

picture224

1

T

Emp

ORTANT;

Check to make sure hand of watch cannot pass screw or wire without contact* ing it.

DIAMETER OF NAIL-

How to Use

4. Remove the plug from the cap and push the flat head nail through the hole in the cap from the inside.

I. Set the watch so that a hand will reach the screw or wire at the time you want the firing circuit completed.

2. Wind the watch.

H5

picture225

NAIL

PIPE CAP

3. Attach a wire from the case of the watch to one terminal of the battery.

5. Cut the striking tips from approximately 10 strike-anywhere matches. Place match tips inside pipe cap and screw plug in

4. Attach one wire from an electric initiator (blasting cap, squib, or alarm device) tp the screw or wire on the face of the watch.

FUSE CCRD PLUG

HOW TO USE:

1. Slide the fuse cord into the hole in the pipe plug.

5. After thorough inspection is made to assure that the screw or the wire connected to it is not touching the face or case of the watch, attach the other wire from the initiator to the second terminal of the battery.

PIPE CAP

picture226

MATCH HEADS NAIL

CAUTION

Follow step 5 carefully to prevent premature initiation.

2. Tape igniter to fuse cord,

Section VI

llli No. 5

NO-FLASH FUSE IGNITER

A simple no-flash fuse igniter can be made from common pipe fittings.

MATERIAL REQUIRED :

1/4 in. (6mm) Pipe Cap Solid 1/4 in. (6mm) Pipe Plug Flat head nail about 1/16 in.

(1 1/2 mm) in diameter Hand Drill Common "Strike Anywhere"

Matches Adhesive Tape

PROCEDURE :

1. Screw the pipe plug tightly into the pipe cap.

picture227

3. Tap point of nail on a hard surface to ignite the fuse.

picture228

Section VI

116 No. 6

DRIED SEED TIMER

A time delay device for electrical firing circuits can be made using the principle of expansion of dried seed».

■

MATERIEL REQUIRED :

Dried peas, beans or other dehydrated seeds

timer

Wide mouth glass jar with non-metal cap

Two screws or bolts

Thin metal plate

Hand drill Screwdriver

PROCEDURE :

1. Determine the rate of rise of the dried seeds selected. This

is necessary to determine delay time of the timer.

a. Place a sample of the dried seeds in the jar and cover with water.

picture229

Expansion of the seeds will raise the metal disc until It? contacts the screws and closes the circuit.

CONNECTING WIRES —EXPLOSIVE

picture230

BATTERY Q Section VI

118 No. 7

FUSE CORDS

BLASTING CAP

b. Measure the time it takes for the seeds to rise a given

height. Most dried seeds increase 50% in one to two T v..^ f„.„ mmm * m . , .

hfivrs. *£**? ,u,€ cordB * r « u «««<* *©* igniting propellants and

incendiaries or, with a non-electric blasting cap, to detonate

explosives.

2. Cut a disc from thin metal plate. Disc should fit loosely inside the jar.

NOTE: If metal is painted,

rusty or otherwise coated, it must be scraped or sanded to obtain a clean metal surface.

picture231

3. Drill two holes in the cap of the jar about 2 inches apart. Diameter of holes should be such that screws or bolts will thread tightly into them. If the Jar has a metal cap or no cap, a piece of wood or plastic (NOT META L) can be used as a cover.

METAL PLATE

117

4. Turn the two screws or bolts through the holes in the cap. Bolts should extend about one in. (2 1/2 cm) into the jar.

picture232

FAST BURNING FUSE

The burning rate of this fuse is approximately 40 in. (100 cmt per minute.

MATERIAL REQUIRED :

Soft Cotton String /'Potassium Nitrate (Saltpeter) 25 parts

Fine .Black Powder --or./Charcoal 3 parts

Piece of round stick \Sulphur z parts

Two pans or dishes

PROCEDURE :

1. Moisten fine Black Powder to form stitute as follows:

JAR CAP

a paste or prepare a sub

a. Dissolve Potassium Nitrate in an equal amount of water

b. Pulverize charcoal by spreading thinly on a hard surface and rolling the round stick over it to crush to a fine powder.

c. Pulverize sulphur in the same manner.

d. Dry mix sulphur and charcoal.

«. Add Potassium Nitrate solution to the dry mix to obtain a thoroughly wet paste. STRING NAIL

j, BOLT

5. Pour dried seeds into the container. The level will depend _—-

upon the previously measured rise time and the desired delay. 2. Twist or braid three strands

-~*~ of cotton string together

METAL DISC

6. Place the metal disc in the jar on top of the seeds.

HOW TO USE:

picture233

picture234

JAR

3. Rub paste mixture into twi.ted DRIED SEEDS »tring with fingers and allow to dry

BLACK POWDER PASTE

i«H A f d Ju '< cnou * h w * ter ^ completely cover the seeds and place the cap on the jar.

fw £ ttacft connecting wires from the firing circuit to the two screws on the cap.

CONNECTING WIRES

METAL DISC

DRIED

SEEDS

 picture235

 picture236

119 /r Uke^fVrVk^w b r nin l ? "I' Q< fU " by "*"«'»• the time it

obtain a one minute (60 second) delay time.

SLOW BURNING FUSE m^nut^ ning r * U ° £thU *•• *• proximately 2 in. (5 cm) per MATERIAL REQUIRED Cotton String or 3 Shoelaces

POOR MAN'S JAMES BOND Vol. 2

317

IMPROVISED MUNITIONS

PROCEDUR E:

1. Waih cotton-atring or shoelace* in hot soapy water; rinse in fresh water.

2. Dissolve 1 part Potassium Nitrate or Potassium Chlorate and 1 part granulated sugar in 2 parts hot water.

3. Soak string or shoelaces in solution.

4. Twist or braid three strands of string together and allow to

dry.

5. Check actual burning rate of the fuse by measuring the time it takes for a known length to burn. Thia ia used to determine the length needed for the desired delay time. If 2 in. (5 cm) burns for 1 minute, 10 in. (25 cm) will be needed to obtain a S

minute delay.

String

4. Thread string through hole in cigarette.

5. Tie string around rear of clothespin, 1/8 inch or less from end. The clothespin nay be notched to hold the string in place!

picture237

Notches Less Than 1/8 Inch From End

/^

I

NOTE: The last few inches of this cord (the end inserted in the material to be ignited) should be coated with the fast burning

Black Powder paste if possible. This must be done when the NOTE: The string must keep the rear end of the clothespin closed so fuse is used to ignite a blasting cap. that the Jaws stay open and no contact is made between the wires.

HOW TO USE:

f REMEMBER: The burning rate of either of these fuses can vary] greatly. Do Not Use for ignition until you have checked their burning rate. _^_^__^_

Section VI

" u No. 8

CLOTHESPIN TIME DELAY SWITCH

A 3 to 5 minute time delay switch can be made from the clothespin switch (Section VO, No. 1) and a cigarette. The system can be used for initiation of explosive charges, mines, and booby traps.

Suapend the entire system verti-caLly with the cigarette tip down. Light tip of cigarette. Switch will close and Initiation will occur when the cigarette burns up to and through the string.

picture238

To Firing

Circuit

Cigarette

MATERIAL REQUIRED :

Spring type clothespin

Solid or stranded copper wire about 1/16 in. (2 mm) in diameter (field or

bell wire is suitable) Pine string, about 6 inches in length Cigarette Knife

PROCEDURE:

1. Strip about 4 inches (10 cm) of insulation from the ends of 2 copper wires. Scrape copper wires with pocket knife until metal is shiny.

2. Wind one scraped wire tightly on one Jaw of the clothespin, and the other wire on the other Jaw so that the wires will be in contact with each other when the Jaws are closed.

picture239

NOTE: Wires to the firing circuit must not be pulled taut when the twitch it mounted. This could prevent the Jaws from closing.

SECTION VI

122 NO. 9

TIME DELAY GRENADE

This delay mechanism makes it possible to use an ordinary grenade as a time bomb.

MATERIAL REQUIRED :

Grenade Fuse Cord

IMPORTANT: Fuse cord must be the type thai burns completely. Fast burning improvised fuse cord (Sec'ion VI. No. 7)' is suitable. Safety fuse is not satisfactory, since its outer covering does not burn.

PROCEDURE:

Knot

Burning Length

-i

picture240

I. Bend end of safety lever upward to form a book. Make a single loop of fuse cord around the center of the grenade body and safety lever. Tie a knot of the non-slip variety at the safety lever.

Measured Length of Fuse Cord

Safety Lever Pin

picture241

Loop of

Fuse Cord

3. Measuring from tip of cigarette, measure a length of cigarette that will correspond to the desired delay time. Make s hole in cigarette at this point, using wire or pin.

121 Pin or Wire

NOTE: Delay time may be adjusted by varying the burning length of the

cigarette. Burning rate in still air is approximately ? minutes per inch 2 - Measuring from the knot along the free length of the fuse cord,

(2.5 cm). Since this rate varies with environment and brand of cigarette, measure off a length of fuse cord that will give the desired delay

it should be tested in each case if accurate delay time is desired. time. Cut off the excess fuse cord.

IOTE: The loop must be tight enough to hold the safety lever in position when the pin is removed.

HOW TO USE:

X. Place hand around grenade and safety (ever so safety lever is held in place. Carefully remove pin.

2. Emplace grenade in desired location while holding grenade and safety lever.

3. Very carefully remove hand from grenade and safety lever, making sure that the fuse cord holds* the safety lever in place.

123

 picture242

 picture243

4. Light free and of fuse cord. Section VI

12l| No. 10 CAN-LIQUID TIME DELAY

A time delay device for electrical firing circuits can be made using a can and liquid.

MATERIAL REQUIRED

Can

Liquid (water, gasoline, etc.)

Small block of wood or any material that will float on the liquid used Knife

2 pieces of solid wire, each piece 1 foot (30 cm) or longer PROCEDURE;

1. Make 2 small holes at opposite sides of the can very close to the top.

2. Remove insulation from a long piece of wire for a distance a Utile greater than the diameter of the can.

 picture244

3. Secure the wire in place across the top of the can by threading it through the holes and twisting in place, leaving some slack. Make loop in center or wire. Be sure a long piece of wire extends from one end of the can.

4. Wrap a piece of insulated wire around the block of wood. Scrape insulation from a small section of this wire and band as shown so that wire contacts loop before wood touches bottom of container. Thread this wire through the loop of bare wire.

5. Make a very small hole (pinhole) in the side of the container. Fill

container with a quantity of liquid corresponding to the desired delay

time. Since the rate at which liquid leaves the can depends upon weather

conditions, liquid used, size of hole, amount of liquid in the container.

etc., determine the delay time for each individual case. Delays from

a few minutes to many hours are possible. Vary time by adjusting liquid 'level, type of liquid (water, oil) and hole size.

(.taps above). Be sure that woodan block float, on liquid and that wire la free to move down aa liquid leavea container.

1. Connect wirea to firing circuit.

MOTE: A long term delay can be obtained by placing a volatile ltn,,irf

ZTZEl 1 !?*"- B. W . that *• wc^ wiU HcetTthe l3 uaad. DO NOT MAKE PINHOLE IN SIDE OF CAN*

XafO Xo. U

SHORT TERM TIME DELAY FOR GRENADE

A simple modification can produce delays of approximately 12 eec-onda for grenades when fired from Grenade Launchers (Section IV. Xo. 3>.

MATERIAL REQUIRED :

Grenade Nail

Safety fuse

?^\/^'" f€ty<>riraprovl * edfu » em *y»>«««ed. However aince dif ferent time delay, will result, determine the burning rate^e fuTe «r.t.

PROCEDURE ■

Body of Crlmp

1. Unscrew fuse mechanism from body of grenade and remove. Pliers may have to be uaad.

2.. Carefully cut with knife or break off detonator at crimp and aava for later use.

3, Remove safety pin pull ring and lever, letting striker hit the primer. Place fuse mechanism aalde until delay fuse powder mix In mechanism is completely burned.

picture245

CAUTION: If detonator is cut or broken below the crimp, detonation may occur and severe injuries could result.

Spring *Mr W» Pull Ring

^

127

Primer 4. Remove pin, spring, and striker.

Fuse Mechanism (Pin, Spring and

Striker Removed)

picture246

3. Remove primer from fuse mechanism by pushing nail through l>ottnm end of primer

hole and tapping with hammer.

picture247

6. Insert safety fuse through top of primer hole. Knlarge hole If necessary. The fuse should go completely through the hole.

picture248

7. Insert fuse into detonator and tape it securely to modified fuse mechanism.

picture249

Detonator

NOTE: Be sure that fuse rests firmly against detonator at ail times.

8. Screw modified fuse mechanism back into grenade. Grenade is now ready for use.

128

Tape

NOTE: If time delay is used for Improvised Grenade Launchers (Section IV, No. 5) -

1. Wrap tape around safety fuse.

2. Securely tape fuse to grenade.

3. Load grenade in launcher. Grenade will explode in approximately 12 seconds after safety fuse burns up to bottom of grenade.

12 Sec Burning Time from this Point

picture250

.—Section VI

*** No. 12 LONG TERM TIME DELAY FOR GRENADE

A simple modification can produce delays of approximately 20 seconds for grenades when fired from Grenade Launchers (Section IV, No. 5) MATERIAL REQUIRED :

Grenade Nail

"Strike-anywhere" matches, 6 to 8 .

Pliers (may not be needed)

Knife or sharp cutting edge

Piece of wood

Safety fuse

NOTE: Any safety or improvised fuse may be used. However, since

different time delays will result, determine the burning rate of the fuse

first.

PROCEDURE: Bwfy o{

Grenade

1. Unscrew fuse mechanism from body of grenade and remove. Pliers may have to be used.

picture251

2. Insert nail completely through safety hole (hole over primer)-

Striker

3. Carefully remove safety pin pull ring and lever, and allow striker to hit nail.

Safety Pin Pull Ring

picture252

[CAUTION: If for any reason, striker should hit primer instead of nail, [detonator will explode after (4-5 sec.) delay time.

Primer

4. Push pin out and remove spring and striker. Remove nail.

picture253

Fuse Mechanism (Pin, Spring and Striker Removed)

Top Section

5. Carefully remove top section of fuse mechanism from bottom section by unscrewing. Pliers may have to be used.

Bottom Section

picture254

Detonator

 picture255

POOR MAN'S JAMES BOND Vol. 2

320

IMPROVISED MUNITIONS

8. Fire primer by hitting nail placed against top of it. Remove fired primer (same a* procedure 5 of Section VI, No. 11).

132

Tap*

 picture256

CAUTION: Do not hold assembly in your hand during above operation as serious burns may result.

131

 picture257

NOTE: If time delay is used for Improvised Grenade Launchers (Section IV, Ho. 5) -

1. Wrap tape around aafety fuse.

2. Securely tape fuse to

grenade

3. Load grenade In launcher. Grenade will explode in approximately 20 seconds after safety fuse burns up to bottom of grenade.

 picture258

20 Sec Burning Time from this Point

7. Scrape delay fuse powder with a sharpened stick. Loosen about 1/4 in. (6 mm) of powder in cavity.

picture259

Section VII

133 no. i

CLOTHESPIN SWITCH

A spring type clothespin is used to make a circuit clos ing switch to actuate explosive charges, mines, booby traps and alarm systems.

picture260

CittHCtVlH

picture261

CLoT>«Et»tN

iwitch

a. Cut off tips (not whole head) of 6 "strike-anywhere" matches with sharp cutting edge. Drop them into delay fuse hole.

picture262

Material Required

Spring type clothespin.

Solid copper wire -- 1/16 in. (2 mm) in diameter.

Strong string on wire.

Flat piece of wood (roughly 1/8 x 1" x 2").

Knife. Procedure

"Strike-Anywhere Match Tip

Head

1.

9, Place safety fuse in delay fuse hole so that it is flush against the match tips.

IMPORTANT: Be sure fuse remains flush against the match tips at all times.

10. Thread fuse through primer hole. Enlarge hole if necessary. Screw modified fuse mechanism back together. Screw combination back into grenade. Grenade modification is now ready for use. Light fuse when ready to use.

picture263

Strip four in. (10 cm) of insulation from the ends of 2 solid copper wires. Scrape copper wires with pocket knife until metal is shiny.

Wind one scraped wire tightly on one jaw of the clothespin, and the other wire on the other jaw.

Make a hole in one end of the flat piece of wood using a knife, heated nail or drill Tie strong string or wire through the hole.

picture264

PLAT MfCf ##

k>

»!•••• UliN •* . «

POOR MAN f S JAMES BOND Vol. 2

5. Place flat piece of wood between jaws of the clothespin switch.

Basic Firing Circuit

picture265

CLOTHCSFIN SWITCH

CT

STftONS TWINE BATTCRV WrittUW

When the flat piece of wood is removed by pulling the string, the jaws oi

the clothespin will close completing the circuit.

CAUTION

Do not attach the battery until the switch am trip wire have been emplaced and examined. Be sure the flat piece of wood is separating the jaw; of the switch.

A Method of Use

.MAIL TO STAKf

<CLo'»t4>. M "U*T TUfM r«t*lT <m TMC Mil I

picture266

T«I 0* LtMI PtMf 1

2. Retract the striker of the mousetrap and attach the trip lever across the end of the wood base using the staple with which the holding wire was attached*

NOTE: If the trip lever is not made of metal* a piece of metal of approximately the same size

should be used.

 picture267

TRIP LEVER

 picture268

3. Strip one in. (2 1/2 cm) of insulation from the ends of 2 connecting wires.

4. Wrap one wire tightly around the spring loaded striker of the mousetrap.

5. Wrap the second wire around some part of the trip lever or piece of metal.

 picture269

 picture270

HOW TO USE:

 picture271

CONNECTING WIRES ™

 picture272

This switch can be used in a number of ways -- one typical method is presented here.

The switch is placed inside a box which also contains the explosive and batteries. The spring loaded striker is held back by the lid of the box and when the box is opened the circuit is closed*

Shelf Explosive Blasting Cap

Mousetrap Switch

Box

, -- Section VII J"" No. 2

MOUSETRAP SWITCH

picture273

Battery

Section VII L37 No. 3

•witc traps

FLEXIBLE PLATE SWITCH A common mousetrap can be used to make a circuit closing

:h for electrically initiated explosives, mines and booby This pressure sensitive switch is used

for initiating emplaced

MATERIEL REQUIRED :

Mousetrap Hacksaw or File Connecting wires

picture274

TRIP LEVER

PROCEDURE :

1. Remove the trip lever from the mousetrap using a hacksaw or file. Also remove the staple and holding wire.

i

 picture275

STAPLE

 picture276

mines and explosives.

MATERIAL REQUIRED :

Two flexible metal sheets

one approximately 10 in. (25 cm) square one approximately 10 in. x 8 in.(20 cm)

Piece of wood 10 in. square by 1 in. thick

Four soft wood blocks I in.x 1 in.x 1/4 in.

Eight flat head nails, 1 in. long

Connecting wires

Adhesive tape

PROCEDURE :

1. Nail 10 in. x 8 in. metal NAILS sheet to 10 in. square piece of wood so that 1 in. of wood shows on each aide of metal. Leave one of the nails sticking up about 1/4 in.

 picture277

 picture278

METAL SHEET

WOOD BASE

2, Strip insulation from the end of one connecting wire. Wrap this end around the nail and drive the nail all the way in.

3* Place the four wood blocks on the corners of the wood base.

 picture279

 picture280

WOOD BLOCKS

 picture281

4. Place the 10 in. square flexible metal sheet so that it rests on the blocks in line with the wood base.

5. Drive four nails through the metal sheet and the blocks to fasten to the wood base. A second connecting wire is attache to one of the nails as in Step 2.

Section VII 139 No. 4

METAL BALL SWITCH

This switch will close an electric circuit when it is tipped in any direction. It can bo used alone for booby traps or in combination with another switch or timer as an anti-disturbance switch.

MATERIAL REQUIRED;

Metal Ball 1/2" (11/4 cm)

diameter (see Note) Solid copper wire 1/16" (1/4 cm)

diameter Wood block 1" (2 1/2 cm) square

by 1/4" thick Hand drill

Connecting wires Soldering iron f* solder

NOTE : If other than a 1/2" diameter ball is used, other dimensions must be changed so that the ball will rest in the center hole of the block without touching either of the wires.

picture282

6. Wrap adhesive tape around the edges of the plate and wood base. This will assure that no dirt or other foreign matter will get between the plates and prevent the switch from operating.

TAPE

HOW TO USE:

picture283

PROCEDURE:

1- Drill four 1/16" holes and one 1/8" hole through the wood block as shown.

picture284

2. Form two "0" shaped pieces from 1/16" copper wire to the

dimensions shown.

picture285

1/16" HOLE 1/8" HOLE

ONE 1" HIGH ONE 1-1/2** HIGH

The switch ie placed in a hole in the path of expected traffic rn^t. C r o i^ re Tr ith f mn Uy " °< dirt •* other^mouflalS

SSS& EtuHld ME? •afis** device ******& ?o ^

desired. h * •witch or emplaced eUewhere a.

THIN LAYER OF DIRT

SWITCH

ROAD SURFACE

picture286

L

3. Wrap a connecting wire around one leg of each "U" at least 1/4" from the end and solder in place.

U*o

CONNECT TO EXPLOSIVE When a vehicle passes over the switch, the two metal plates make contact closing the firing circuit.

4. Place metal ball on block so that it rests in the center hole.

5. Insert the ends of the small "U" into two holes in the block. Insert large "U" into the re-maining two holes.

picture287

*«fl

M

CAUTION; Make sure that the metal ball doe* not touch either

U" shaped wire when the • witch it standing on its base. If the ball does touch, bend wires outward slightly.

picture288

Contacts

Wire

HOW TO USE: _.

5. Securely tape contact strips Mount switch vertically and connect in electrical firing to *«*es of container, circuit as with any other switch. When tipped in any direction it will close the circuit.

picture289

Wire

Containe r

Small Clearance

[

CAUTION: Switch must be mounted vertically and not| disturbed while completing connections.

Section VII UP No.S

ALTIMETER SWITCH

picture290

Contacts Taped To Container

HOW TO USE:

1. Connect the altimeter switch in an explosive circuit the same a* any switch.

ai

This switch is designed for use with explosives placed on 2. Place the explosive package on airplane. As the plane rcraft. tt will close an electrical firing circuit when an rises the air inside the container will expand. This forces the

plastic sheet against the contacts closing the firing circuit.

altitude of approximately 5000 ft (1-1/2 KM) is reached.

MATERIAL REQUIRED :

Jar or tin can

Thin sheet of flexible plastic or waxed paper

Thin metal sheet (cut from tin can|

Adhesive Tape

Connecting Wires

PROCEDURE:

1. Place sheet of plastic or waxed paper over the top of the can or Jar and taps tightly to sides of container.

picture291

NOTE: The switch win not function in a pressunzea caoin. It must be placed in some part of the plane which will not be Pressurised.

TEScuorv^""

uo

No. 6 PULL-LOOP SWTTCH

NOTE: Plastic sheet should not be stretched tight. A small jspression should be l«ft_in the top.

Depression

Plastic Sheet

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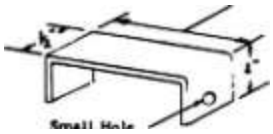
picture292

2. Cut two contact strips from thin metal and bend to the ■ napes shown.

Outside Diam.

of Container



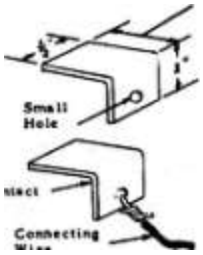
1/2 Diam. of Container

Small Hole

1. Strip insulation from the ends of two connecting wires. Attach one wire to each contact strip.

NOTE: If a soldering iron is available solder wires in

pi.



This switch will Initiate explosive charges, mines, and booby traps when the trip wire is pulled.

MATERIAL REQUIRED :

2 lengths of insulated wire

Knife

Strong string or cord

Fins thread that will break easily

PROCEDURE :

1. Remove about 2 inches of insulation from one end of each length of wire. Scrape bare wire with knife until metal is shiny.

2. Make a loop out of each piece of bare wire.

3. Thread eaoh wire through the loop of the other wire so the wires can slide along each other.

NOTE: The loops should contact each other when the two pulled taut.

liili

HOW TO USE:

\ s Insulated

Wire

res are

Loops

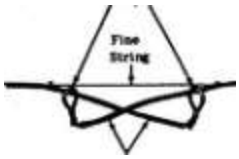
Contact

Connecting Wire

11*2

?.* ,r Uce .u onUcl • tri P? ° v «' container so that the larger contact two ,m * Uer Wilh * ver V •™ U clearance between the

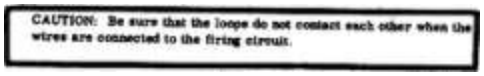
1. Separate loops by about 2 Inches. Tie piece of fine thread around wires near each loop Thread should be taut enough to support loops and wire, yet fine enough that it will break under a very slight pull.



Wire

2. Fasten one wire to tree or stake and connect end to firing circuit.

3. Tie a piece of cord or string around the other piece of wire a few inches from the loop. Tie free end of cord around tree, bush, or stake. Connect the free end of the wire to the firing circuit. Initiation will occur when the tzipcord is pulled.



X

Pull-Loop Switch

OTHER USES : The switch minus the fine thread may be used to activate

a booby trap by such means as attaching it between the lid and a rigid

portion of a box, between a door and i door jamb, and in similar manners

. I - Section VII

l05 no. 7

KNIFE SWITCH

This device will close the firing circuit chargea. mines, and booby traps when the trip wire is pulled or cut.

MATERIAL REQUIRED :

Knife or hack aaw blade

6 nails

Strong string or light rope

Sturdy wooden board Wire

MATERIAL REQUIRED :

Pages from Improvised Munitions Handbook

Straight sticks about 1 foot (30 cm) long and 1/4 in. (5 mm) in diameter Thread or fine string PROCEDURE :

1. Make a notch about 1/2 in. <1 cm) from each end of stick. Be sure that the two notches are the same distance from the end of the stick.

2. Find the exact center of the stick by folding in half a piece of thread the same length as the stick and placing it alongside the stick as a ruler. Make a small notch at the center of the stick.

3. Tie a piece of thread around the notch. Suspend stick from branch, another stick wedged between rocks, or by any other means. Be sure stick is balanced and free to move.

V

J

NOTE: If stick is not balanced, shave or scrape a little off the heavy [_, ,

end until it does balance. Be sure ' i/2 length the lengths of the arms are the same. 0 f stick

Thread

PROCEDURE :

1.' Place knife on board. Drive 2 nails into board on each side of knife handle so knife is held in place.

2. Drive one nail into board so that it touches blade of knife near the

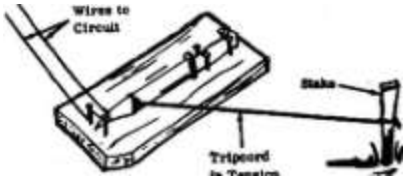
point. v

9. Attach rope to knife. Place rope across path. Apply tension to rope, pulling knife blade away from nail slightly. Tie rope to tree, bush, or stake.

4. Drive another nail into board near the tip of the knife blade as shown below. Connect the two nails with a piece of conducting wire. Nail should be positioned so that it will contact the second nail when blade is pulled about 1 inch (2-1/2 cm) to the side.

Wires to

Circuit



Trlpcord in Tension

NOTE: Check position of naila to knife blade. The nails should be placed so that the knife blade will contact either one when the rope is pulled or released.

HOW TO USE :

Attach one wire from firing circuit to one of the naila and the other to the knife blade. The circuit will be completed when the trlpcord is

pulled or released.

Section VII

lk6 No. 8

IMPROVISED SCALE

4. Make a container out of one piece of paper. This can be done by rolling the paper into a cylinder and folding up the bottom a few times.

5. Punch 2 holes at opposite sides of paper container. Suspend container from one side of stick.

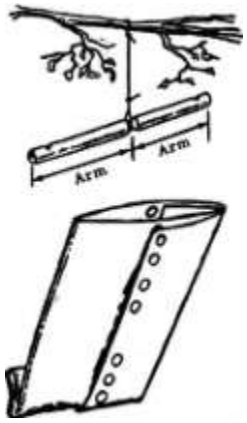
6. Count out the number of handbook pages equal in weight to that of the quantity of material to be weighed. Each sheet of paper weighs about 1.3 grams (20 grains or .04 ounce). Suspend these sheets, plus one , to balance container on the other side of the scale.

7. Slowly add the material to be weighed to the container. When the stick is balanced, the desired amount of material is in the container.

8. If it is desired to weigh a quantity of material larger than that which would fit in the above container, make a container out of a larger paper or paper bag, and suspend from one side of the stick. Suspend handbook pages from the other side until the stick is balanced. Now place

a number of sheets of handbook pages equal in weight to that of the desired amount of material to be weighed on one side, and fill the container with the material until the stick is balanced.

9. A similar method may be used to measure parts or percentage by weight. The weight units are unimportant. Suspend equal weight containers from each aide of the stick. Bags, tin cans, etc. can be used. Place one material in one of the containers. Fill the other container with the other material until they balance. Empty and refill the num-



ber of times necessary to get the required parts by weight (e.g., 5 to 1 This scale provides a means of weighing propel 1 ant and other P*rts by weight would require 5 fillings of one can for one filling of the items when conventional scales or balances are not available. other).

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litf

SecUon VII 1MB No. 9

ROPE GRENADE LAUNCHING TECHNIQUE

CAUTION: If safety lever should be released for any reason, grenade will explode after regular delay time (4-5 sec.) .

NOTE : If diameter of safety fuse is too large to fit in hole (Step 4), follow procedure and How to Use of Time Delay Grenade, Section VI, No. 9. instead of Steps 3 and 4 above. HOW TO USE :

1. Light fuse.

2. Whirl grenade overhead, holding knot at end of rope, until grenade picks up speed (3 or 4 turns).

3. Release when sighted on target.

CAUTION: Be sure to release grenade within 10 seconds after fuse is lit.

NOTE: It is helpful to practice first with a dummy grenade or a rock

to improve accuracy. With practice, accurate launching up to 100 meters

(300 feet) can be obtained. A method of increasing the distance a grenade may be thrown. Safety

fuse is used to increase the delay time.

MATERIAL REQUIRED :

Hand grenade (Improvised pi|>e hand grenade. Section II, No. 1 may be

used)

Safety fuse or fast burning Improvised Fuse, (Section VI, No. 7) Light rope, cord, or string

Section VII

No, 10

BICYCLE GENERATOR POWER SOURCE

150

PROCEDURE :

1: Tie a 4 to 6 foot (1 meter) length of cord to the grenade. Be sure that the rope will not prevent the grenade handle from coming off.

Rope

A 6 volt, 3 watt bicycle generator will set off one or two blasting caps (connected in series) or an igniter.

MATERIAL REQUIRED :

Bicycle generator (6 volts, 3 watt)

Copper wi re

Knife

PROCEDURE:

Note: If improvised grenade is used, tie cord around grenade near the

end cap. Tape in place If necessary.

1. Strip about 4 in. (10 cm) of

2. Tie a Urge knot in the other end of the cord for use as a handle. coatin * from both ends * 2 copper

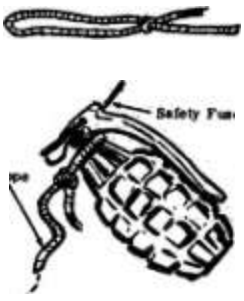
wires. Scrape ends with knife

3. Carefully remove safety pin from grenade, holding safety lever in place. Enlarge safety pin hole with point of knife, awl, or drill so that safety fuse will pass through hole.

4. Insert safety fuse in hole. Be sure that safety fuse is long enough no _-to provide a 10 second or more time delay. Slowly release safety lever to make sure fuse holds safety lever in place.

until metal is shiny.

Safety Fuse

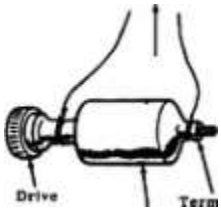


2. Connect the end of one wire to the generator terminal.

3. Attach the end of the second wire to generator case. This wire may be wrapped around a convenient projection, taped, or simply held

against the case with the hand.

To Blasting Cap or Squib



Drive Wheel

Terminal

Case

POOR MAN'S JAMES BOND Vol, 2

326

IMPROVISED MUNITIONS

HOW TO USE:

151

1. Connect free ends of wires to blasting cap or squib leads

CAUTION: If drive wheel is routed, explosive may be set off.

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2. Run the drive wheel firmly and rapidly across the palm of the hand to activate generator.

Section VD

1$2 No. 11

AUTOMOBILE GENERATOR POWER SOURCE

An iutomobll« generator can be used as a means of firing one blast-ins; cap or Igniter. (Improvised Igniter, Section V, No. 2. may be need.)

MATERIAL REQUIRED .

Automobile generator (6, 12, or 28 volte). (An alternator will not work.) Copper Wire

Strong string or wire, about 5 ft. (150 cm) long and 1/16 In. (1-1/2 mm)

in diameter Knife

Small light bulb requiring same voltage as generator, (for example, bulb from same vehicle as generator).

PROCEDURE :

1. Strip about 1 la. (2-1/2 em) of costing from both ends of 3 copper wires. Scrape ends with knife until metal la shiny.

t. Connect the A and F terminals

with one piece of wire.

3. Connect a wire to the A terminal. Connect another to the G terminal.

MOTE: The F s«l O or C terminal, may act be labeled; in this case, connect wires as shown. The F terminal is usually smaller in ■<«• thaa the C or O terminal.

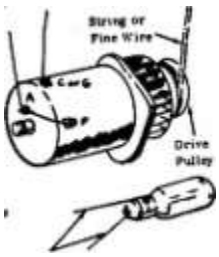
153

4. Wrap several turns of string or wire clockwise around the drive

pulley.

HOW TO USE

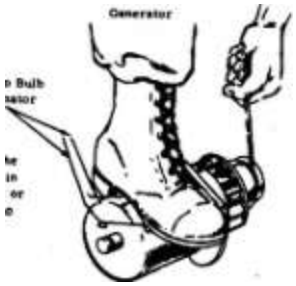
1. Connect the free.ends of the wires to the light bulb.



Leads from Generator

Leads to Bulb or Detonator

2. Place one foot on the generator to secure it in place. Give the string or wire i very hard pull to light the bulb.



NOTE: If not successful at first, rewind string snd try sgain several times. After repeating this operation and the bulb still does not light, follow Step 4, "How to Use."

3. If light bulb lights, follow Steps 1 and 2 of sbove, "How to Use," connecting free ends of wires to blasting cap or igniter instesd of to light bulb.

4. If tight bulb doea not light after several pulls, switch leads connected to F and G terminals. Repeat above "How to Use." Steps 1 to 3.

Section VH No. 12

IMPROVISED BATTERY (SHORT LASTING)

15k

This battery is powerful but must be used within 14 minutes after fabrication. One cell of this battery will detonate one blasting cap or igniter. Two cells, connected In series, will detonate two of these devices and so on. Larger cells have a longer life as well as greater power.

MATERIALS

Water

Sodium hydroxide (lye, solid or concentrated solution)

Copper or brass piste, about

4 in. (10 cm) square sad 1/16 in,

(2 mm) thick

COMMON SOURCE

Soap manufacturing Disinfectants Sewer cleaner

POOR MAN'S JAMES BOND Vol

327

IMPROVISED MUNITIONS

Aluminum plate or sheet, "me lite a* copper plate

Charcoal powder

Container for mixing

Knife

One of the following: Potaasium permanganate, aolid

Calcium hypochlorite, aolid

156

CAUTION: If solution seta on akin, wash off Immediately with water.

1

Manganese dioxide (pyroluclte)

Disinfectants Deodorants

Disinfectants

Water treating chemicals

Chlorine bleaches Dead dry-cell batteries

2. Place an aluminum plate on top of the mixture on each copper plate. Press firmly. Remove any excess that oozea out between the plates.

Aluminum Plate

Copper Plate

E

CAUTION: Be aure plates are not touching each other at any point.

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NOTE: Be aure sodium hydroxide solution is at least a 45% solution by weight. If not, boil off some of the water. If solid sodium hydroxide la available, dissolve some sodium hydroxide in about twice aa mud, water (by volume).

Aluminum Plate

155

PROCEDURE:

1. Scrap* coating off both ends of wires with knife until metal is shiny.

3. If more than one cell Is used, place the cells on top of each other so that unlike metal plates are touching.

Copper Plate Aluminum Plate

Copper Plate

4. When ready to fire, clean plates with knife where connections are to be made. Connect one wire to the outer aluminum plate. This maybe done by holding the wires against the plates or by hooking them through holes punched through plates. If wires are hooked through plates, be sure they do not touch mixture between plates.

Copper Wire

2. Mix thoroughly {do not grind) approximately equal volumes ot powdered charcoal and one of the following: potaasium permangenate, calcium hypochlorite, or manganese dioxide. Add water until a very thick paste la formed,

I CAUTION: Avoid getting any of the ingredient on the skin or in the eyes. I

Aluminum Plate Copper Plate

3. Spread a layer of this mixture about 1/8 In. (2 mm) thick on the copper or brass piste. Be sure mixture U thick enough so that when mixture is sandwiched between two metal plates, the plates will not touch each other at any point.

NOTE: If mora power la required, prepare several plates as above.

Copper Plate

■

Copper

Wire Aluminum Plate

Copper Plate Muminum Plate

Copper Wire

Copper Plate

157

Section Vn No. 13 IMPROVISED BATTERY (2 HOUR DURATION)

HOW TO USE :

1. Just prior to use (no more than IS minutes), carefully pour a email quantity of sodium hydroxide solution over the mixture on each plate used.

This battery should be used within 2 hours and should be securely wrapped. Three cells will detonate one blasting cap or one Igniter. Five cells, connected In series, will detonate two of these devices and no on. Larger cells have a longer life and will yield more power.

If depolarizing materials such as potassium permanganate or m a ngan ese dioxide cannot be obtained, ten cells without depolarizer, arranged as described below, (Step 4) will detonate one blasting cap.

MATERIALS

Water

COMMON SOURCE

Ammonium chloride (sal ammoniac) (solid or concentrated solution)

Medicines

Soldering Duxes

Fertilizers

Ice melting chemicals for

Charcoal powder

Copper or brae* plate about 4 la. (10 cm) square and 1/16 In. (2 mm) thick

Alu m i n um plate same else ae copper or brass plate

Wax end paper (or waxed paper)

Wire, at ring or tape

Container for mixing

KMfa

Que of me following: Potassium permanganate, aolld

1*9

Candle*

Manganese dioxide

Disinfectants

Deodorant*

Dead dry bauertea

NOTE: If ammonium chloride solution ia not concentrated (at least 45% by weight) boil off some of the water.

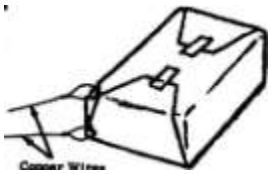
158

PROCEDURE:

1. Mix thoroughly (do not grind) approximately equal volume* of powdered charcoal, ammonium chloride and one of the following: potassium permanganate or manganeae dioxide. Add water until a very thick paste ia formed. If ammonium chloride ia in solution form, it may not be necessary to add water.

b. Wrap the combined cells in heavy waxed paper. The waxed paper can be made by rubbing candle wax over one aide of a piece of paper. Secure the paper around the battery with string. wire or tape. Expose the top and bottom metal plates at one corner.

HOW TO USE :



Copper Wires to Explosives

1. Scrape a few inchea off each end of two wires with knife Oil metal la shiay.

2. Clean plates with knife until metal la shiny where connections are to be made.

3. Connect one wire from the explosive to a copper or brass plate and the other wire to an aluminum plate. The connection can be made by holding the wire against the plate. A permanent connection can be made by hooking the wire through holea in the exposed comers of the plates. The battery la now ready for use.

NOTE: If battery begins to fail after a few firings, scrape the plates and wires where connections are made until metal la shiny.

2. Spread a layer of this mixture, about 1/8 in. (3 mm) thick, on a clean copper or brass plate. The layer must be thick enough to prevent a second plate from touching the copper plate when it la pressed on top.

Section VD No, 14

ARMOR MATERIALS

The following table shows the amount of indigenous materials needed to atop ball type projectiles of the 3.56 mm, .30 caliber, and . SO caliber ammunition fired from their respective weapons at a distance ot 10 feet (3 m). .

3. Press an aluminum plate very firmly upon the mixture on the copper plate. Remove completely any of the mixture that squeezes out between the platea. The plates must not touch.

Aluminum Plate

Copper Plats

4. If more than one cell Is desired:

a. Place one cell on top of the other ao that unlike metal plates are touching.

Aluminum Plate

Copper Plate Aluminum Plate

Copper Plats

NOTE: After many projectiles are fired into the armor, the armor will break down. More material muat be added.