

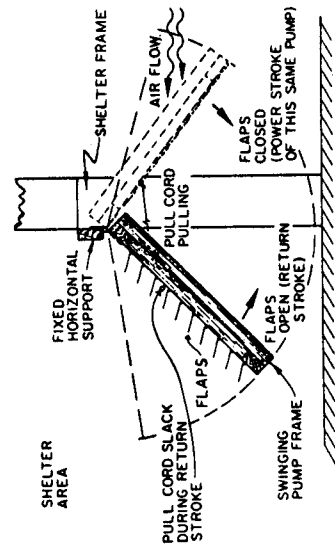
# EXPEDIENT FALLOUT SHELTER

## AIR VENTILATION PUMP — EMERGENCY LAMP — BUCKET STOVE

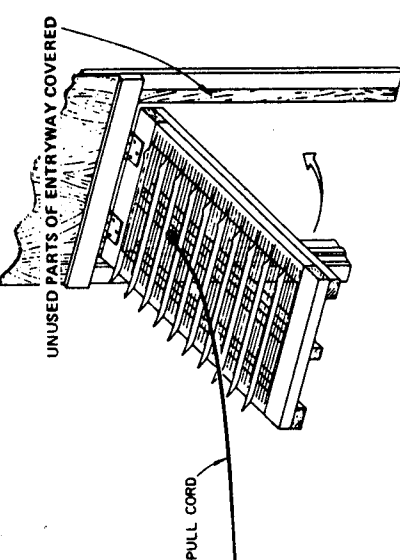
ALL EXPEDIENT SHELTERS ARE DESIGNED TO PROVIDE FOR SOME NATURAL VENTILATION. IN VERY HOT WEATHER, ADDITIONAL VENTILATION MAY BE REQUIRED TO PROVIDE A LIVABLE TEMPERATURE. CONSTRUCTION OF AN AIR PUMP THAT CAN PROVIDE ADDITIONAL VENTILATION IS ILLUSTRATED BELOW.

STUDY ALL INSTRUCTIONS BEFORE STARTING CONSTRUCTION

### STEP 1 AIR PUMP



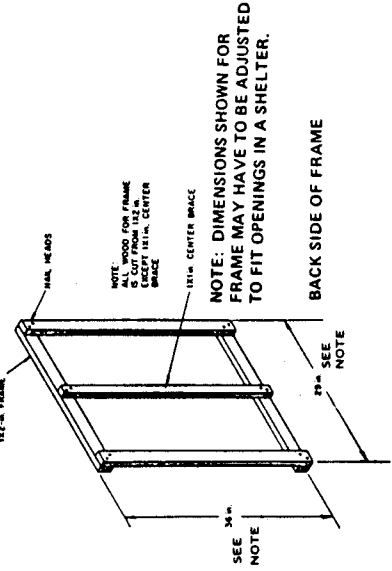
THE AIR PUMP OPERATES BY BEING SWUNG LIKE A PENDULUM. IT IS HINGED AT THE TOP OF ITS SWINGING FRAME. IT IS SWUNG BY PULLING AN ATTACHED CORD. THE FLAPS ARE FREE TO ALSO SWING AND WHEN THEY ARE IN THE CLOSED POSITION, AIR IS PUSHED THROUGH THE OPENING THAT THE PUMP IS ATTACHED TO.



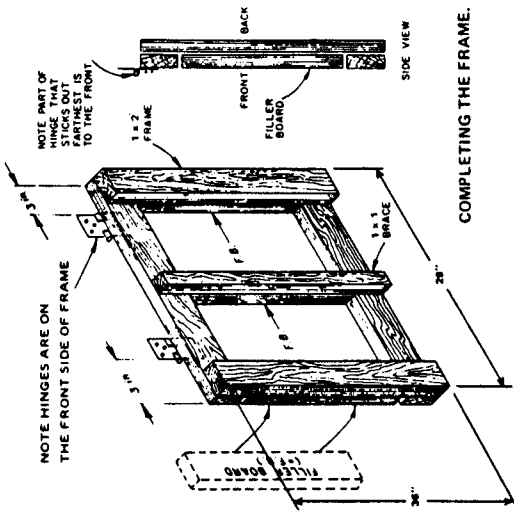
TO OBTAIN MAXIMUM EFFICIENCY AND MOVE THE LARGEST AMOUNT OF AIR, THE UNUSED PORTIONS OF THE ENTRYWAY SHOULD BE COVERED WITH WOOD, PLASTIC, CLOTH, STIFF PAPER OR SIMILAR MATERIALS.

### STEP 3 HOW TO CONSTRUCT THE AIR PUMP

#### A. CUT LUMBER AND ASSEMBLE FRAME AS SHOWN



#### B. COMPLETE FRAME AND ATTACH HINGES. IF DRILL IS NOT AVAILABLE TO DRILL SCREW HOLES TO ATTACH HINGES, USE A NAIL TO MAKE THE HOLES.



### STEP 2 MATERIALS AND TOOLS NEEDED TO CONSTRUCT AN AIR PUMP

(MATERIALS SIZED FOR A 36-INCH BY 29-INCH PUMP) LUMBER SIZES CAN BE ALTERED, DEPENDING ON AVAILABILITY.

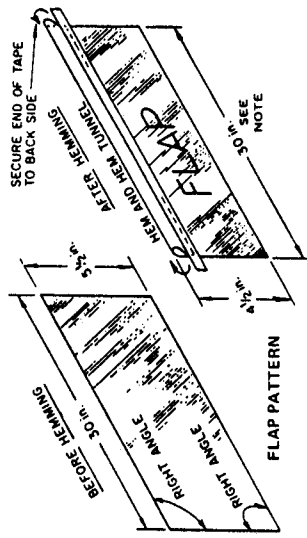
*A. LUMBER	SIZE	QUANTITY	SIZE	QUANTITY
	1" X 2" X 36"	2	1" X 2 1/2" X 32"	2
	1" X 1" X 36"	1	1" X 1" X 32"	1
	1" X 2" X 29"	2	1" X 4" X 36"	1

- \*B. ONE PAIR ORDINARY DOOR OR CABINET BUTT HINGES, OR METAL STRAP HINGES, OR IMPROVISED HINGES MADE OF LEATHER, WOVEN STRAPS, CORDS OR FOUR HOOK & EYE SCREWS WHICH CAN BE JOINED TO FORM TWO HINGES.
- \*C. 24 NAILS ABOUT 2" LONG, PLUS SCREWS FOR HINGES.
- \*D. POLYETHYLENE FILM, 3 TO 4 MILS THICK, OR PLASTIC DROP CLOTH, OR RAINCOAT-TYPE FABRIC, OR STRONG HEAVY PAPER — 10 RECTANGULAR-SHAPED PIECES, 30" X 5 1/2".
- \*E. 30' OF SMOOTH, STRAIGHT WIRE FOR USE AS FLAP PIVOT WIRES — (ABOUT AS THICK AS COAT-HANGER WIRE) OR CUT FROM 10 WIRE COAT HANGERS, OR 35' OF NY1 UN STRING (COAT-HANGER WIRE THICKNESS).
- \*F. 30 SMALL STAPLES, OR SMALL NAILS, OR 60 TACKS TO ATTACH FLAP PIVOT WIRES TO WOOD FRAME.
- \*G. 30' OF 1/4" TO 1" WIDE PRESSURE-SENSITIVE WATERPROOF TAPE THAT DOES NOT STRETCH, OR USE NEEDLE AND THREAD TO SEW HEM TUNNELS TO THE FLAPS.
- \*H. FOR FLAP STOPS, 150 FT OF LIGHT STRING, STRONG THREAD, OR THIN SMOOTH WIRE. 90 TACKS OR SMALL NAILS TO ATTACH FLAP STOPS TO THE WOOD FRAME, OR FLAP STOPS CAN BE TIED TO THE FRAME.
- I. 10 FEET OF CORD FOR THE PULL CORD.
- J. DESIRABLE TOOLS: HAMMER, SAW, WIRECUTTER-PLIERS, SCREWDRIVER, SMALL DRILL, SCISSORS, KNIFE, YARDSTICK, AND PENCIL.

\* Items must be sized or adjusted to fit opening into which air pump is to be placed.

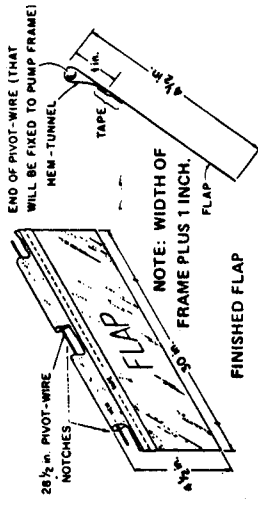
**HOW TO CONSTRUCT THE AIR PUMP (CONT'D)**

**C.** CUT 10 RECTANGULAR STRIPS 30" LONG BY 5 1/2" WIDE FOR USE AS FLAPS. HEM FLAPS AS SHOWN. USE PRESSURE-SENSITIVE TAPE OR SEW HEM SHUT TO FORM HEM TUNNEL.

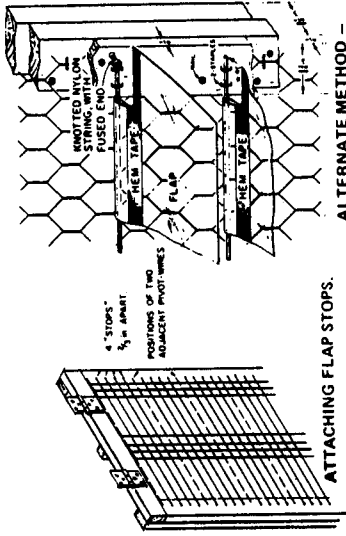


**NOTE:** WIDTH OF FRAME PLUS 1 INCH

INSERT 10 PIECES OF STRAIGHT WIRE (PIVOT WIRES) INTO FLAP HEM AS SHOWN. FLAPS SHOULD SWING FREELY. STRING CAN BE USED IF WIRE NOT AVAILABLE (WIRE COAT-HANGER THICKNESS).



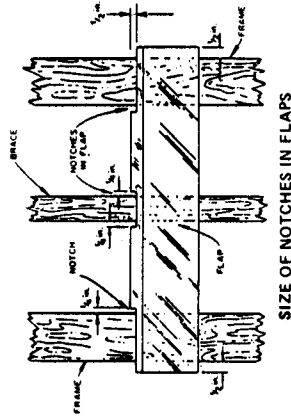
**E.** ATTACH FLAP STOPS (STRINGS OR WIRES) TO THE PUMP FRAME AT THE MARKED LOCATIONS. 4 FLAP STOPS ARE NEEDED BETWEEN ADJACENT PIVOT WIRES.



**ATTACHING FLAP STOPS.**

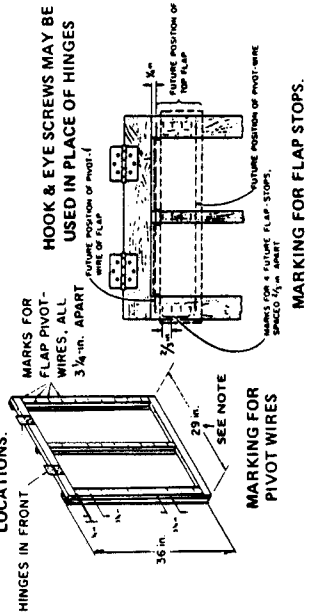
**ALTERNATE METHOD - WIREMESH AS FLAP STOPS.**

AFTER HEM IS MADE, CUT NOTCHES IN FLAPS AS SHOWN. AVOID CUTTING TAPE THAT HOLDS HEM.



**SIZE OF NOTCHES IN FLAPS**

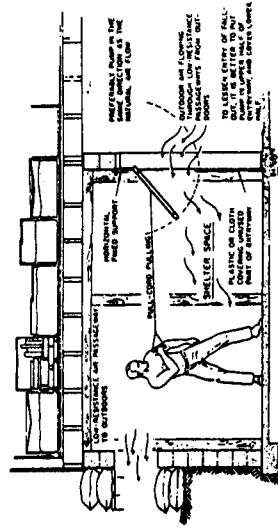
**D.** MARK PUMP FRAME FOR PIVOT WIRE AND FLAP STOP LOCATIONS.



**NOTE:** FRAME DIMENSIONS MAY HAVE TO BE ADJUSTED TO FIT OPENING IN SHELTER

**F.** STARTING FROM THE BOTTOM - STAPLE, NAIL, TACK OR TIE THE FLAP PIVOT-WIRES WITH FLAPS IN THEIR MARKED POSITIONS. ATTACH HINGES TO HORIZONTAL SUPPORT BOARD. ATTACH PULLCORD TO CENTER BRACE.

**STEP 4. TYPICAL INSTALLATION OF AIR PUMP**



# BUCKET STOVE

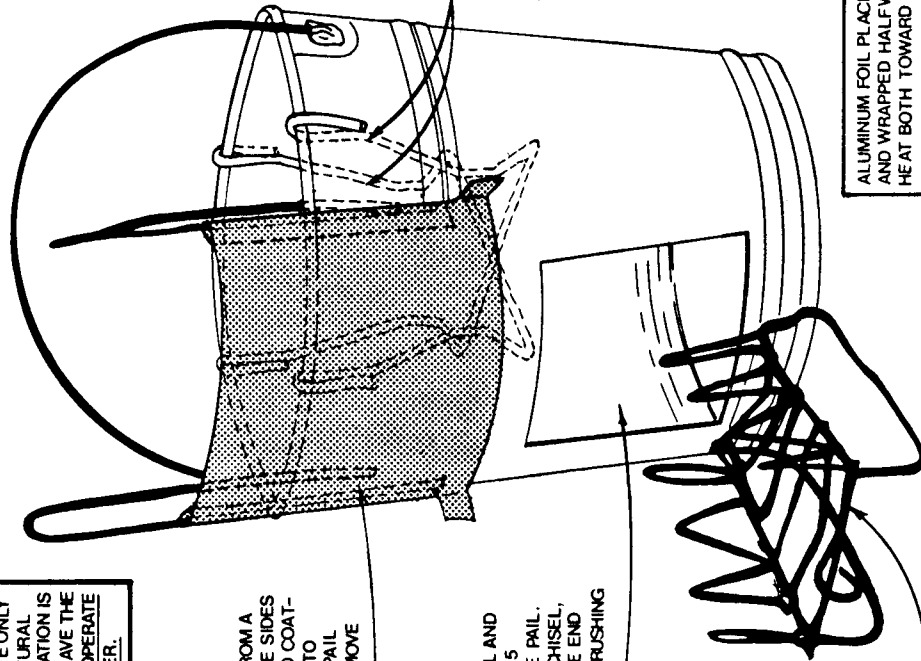
THIS COMBINATION COOK-STOVE/SPACE HEATER IS MADE USING A 10 TO 16 qt. METAL PAI  
SOME COAT-HANGER WIRE, AND METAL CUT FROM A LARGE JUICE OR VEGETABLE CAN.  
WHEN ASSEMBLED AS SHOWN, THE STOVE WILL BRING 3 qts. OF WATER TO A BOIL USING AS  
FUEL ABOUT 1/2 lb. OF DRY, TWISTED PAPER OR DRY WOOD. PIECES OF WOOD ABOUT  
1/2 x 3/4 x 6 INCHES ARE BEST.

**NOTE:**  
LOCATE COOK-STOVE ONLY  
WHERE EITHER NATURAL  
OR FORCED VENTILATION IS  
CAUSING AIR TO LEAVE THE  
SHELTER—DO NOT OPERATE  
IN A SEALED SHELTER.

CUT THE DAMPER FROM A  
JUICE CAN, BEND THE SIDES  
WITH PLIERS AROUND COAT-  
HANGER WIRE USED TO  
ATTACH DAMPER TO PAI  
THIS ALLOWS IT TO MOVE  
UP AND DOWN.

USING A COLD CHISEL AND  
TIN SNIPS, CUT A 5 x 5  
SQUARE HOLE IN THE PAI.  
WHEN USING COLD CHISEL,  
PLACE PAI OVER THE END  
OF A LOG TO AVOID CRUSHING  
THE PAI.

USE 4 OR 5 METAL  
COAT HANGERS TO  
FASHION A GRATE AS SHOWN



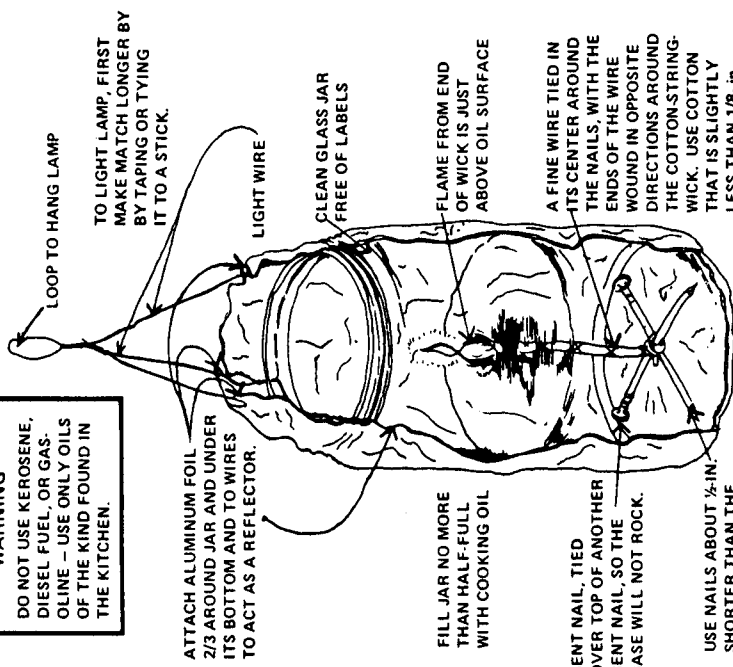
TWO COAT HANGERS USED  
TO FORM COOK-POT  
SUPPORT. BEND AS SHOWN  
TO PRESS FIRMLY AGAINST  
SIDES OF BUCKET.

ALUMINUM FOIL PLACED IN BOTTOM OF PAI  
AND WRAPPED HALF WAY AROUND IT REFLECTS  
HEAT BOTH TOWARD COOK-POT AND TOWARD  
SHELTER AREA WHEN DEVICE IS USED AS A  
SPACE HEATER.

# EMERGENCY LAMP

THIS TYPE OF LAMP WILL PROVIDE LIGHT FOR USE IN EXPEDIENT  
SHELTERS — THE LAMP WILL BURN SLOWLY CONSUMING ABOUT  
3 OUNCES OF COOKING OIL IN 24 HOURS.

**WARNING**  
DO NOT USE KEROSENE,  
DIESEL FUEL, OR GAS.  
OLINE — USE ONLY OILS  
OF THE KIND FOUND IN  
THE KITCHEN.



ATTACH ALUMINUM FOIL  
2/3 AROUND JAR AND UNDER  
ITS BOTTOM AND TO WIRES  
TO ACT AS A REFLECTOR.

FILL JAR NO MORE  
THAN HALF FULL  
WITH COOKING OIL

BENT NAIL, TIED  
OVER TOP OF ANOTHER  
BENT NAIL, SO THE  
BASE WILL NOT ROCK.

USE NAILS ABOUT 1/2-IN.  
SHORTER THAN THE  
DIAMETER OF JAR

WIRE-STIFFENED-WICK LAMP

KEEP EXTRA WIRE AND  
WICK-STRING IN SHELTER.

TO LIGHT LAMP, FIRST  
MAKE MATCH LONGER BY  
BY TAPING OR TYING  
IT TO A STICK.

CLEAN GLASS JAR  
FREE OF LABELS

FLAME FROM END  
OF WICK IS JUST  
ABOVE OIL SURFACE

A FINE WIRE TIED IN  
ITS CENTER AROUND  
THE NAILS, WITH THE  
ENDS OF THE WIRE  
WOUND IN OPPOSITE  
DIRECTIONS AROUND  
THE COTTON STRING-  
WICK. USE COTTON  
THAT IS SLIGHTLY  
LESS THAN 1/8-IN.  
IN DIAMETER. USE  
WINDOW SCREEN  
WIRE OR OTHER  
EQUALLY FINE WIRE.