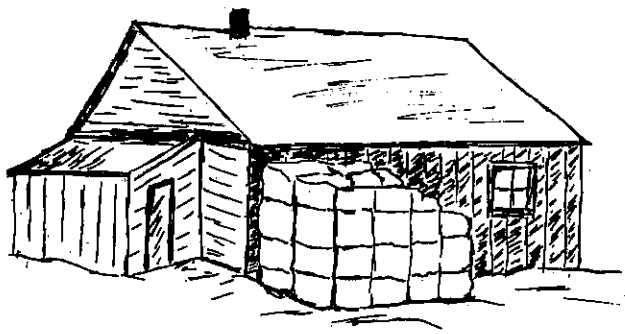
RAIN WATER COLLECTION SYSTEM

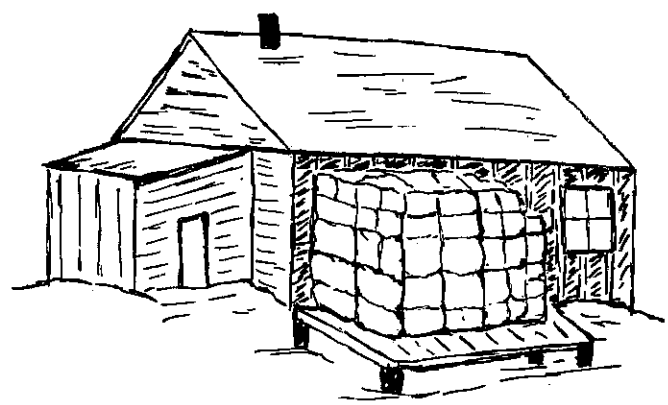
1. LAY BOARDS OVER OIL DRUMS FOR STAND.
2. CONNECT WATER BARRELS TOGETHER WITH PIPES.
3. BUILD GUTTERS AND RUN DOWNSPOUT INTO FIRST BARREL.
4. RUN PIPE AND FAUCET INTO HOUSE.

HOW TO GET CLEAN ICE



1. MARK AREA ON ICE.
2. KEEP DOGS ON EDGE OF LAKE.
3. KEEP SLEDS AWAY FROM CUTTING AREA.
4. ONLY GO INSIDE CUTTING AREA WHEN CUTTING ICE.
5. CARRY BIG BLOCKS ON YOUR SLED

6. IF YOU STORE ICE OUTSIDE, DO IT LIKE THIS. PILE BLOCKS UP HIGH OR PILE ON PLATFORM. THIS IS SO DOGS WILL NOT GET ICE DIRTY. YOU CAN MAKE A PLATFORM OUT OF ICE. BUT DO NOT USE BOTTOM LAYER OF ICE.



3. Children and grown people should not play or walk around the place where ice is cut.

4. Cut the cleanest ice that can be found.

5. When the ice has been carried back to the house it should be put on a platform or stand, above the ground so that dogs will not get it dirty. It is good if a clean tarp or other kind of cover could be put over the ice so that it can be kept clean.

6. When the ice is melted it should be put in clean barrels like those shown in the picture.

7. Because ice comes from streams or ponds and because streams and ponds may have disease germs in them ice water should be boiled or chlorinated before it is used.

Snow is very often melted for water when there is no ice, wells, or springs near the village. Snow is not a good way to get water because it blows along the ground and picks up dirt. Snow can also be made dirty by people and animals walking through it.

If people must use snow for water, they should do the following things:

1. Early in the winter, mark out a place where snow will be collected. Keep people and animals away from this place.

2. Use the top of the snow. It is usually cleaner than the bottom snow.

3. Build snow fences away from the village. These fences will make big drifts that you can use for snow water.

4. When the snow is melted, put it in good storage barrels like those in the pictures.

5. Boil or chlorinate the snow water before it is used.

Storing the water from snow, rain, or other sources is important. If we have a good well or a good spring the water is probably safe when we bring it home but if we do not keep the water safe when we bring it home germs may get into it and make it unsafe to drink. Water should be stored at home in barrels that will keep the water clean and will let us get it easily.

We can store water safely by doing the following things:

1. The storage container should have a tight fitting cover. This cover should be kept on the container all the time except when filling the barrel. Keep the cover off the floor or ground when filling the barrel.

2. A water faucet should be on the barrel so that we can get the water easily.

3. The barrel should be raised off the floor if you have it in your house. The barrel should be on a platform if you have it outside the house.

4. Garbage cans with faucets and covers can also be used to store water. Use a new, clean can.

The drawings show how you can collect and store rain water, how to make a cistern, how to store water in the house, and how to make water barrels.

container = something to put water in such as a bucket or barrel

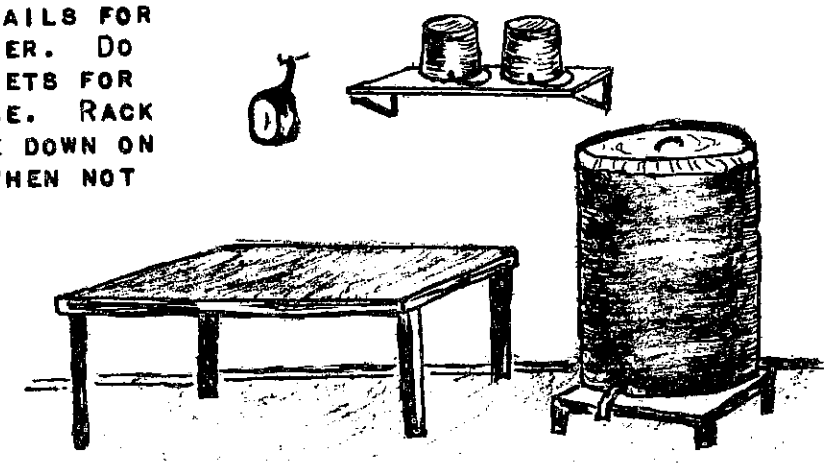
Carrying water from a lake, stream or well can be hard work. The work can be very hard if we have to go very far and must carry buckets by hand. The picture shows how it can be easier to carry water.

CARRYING WATER

1. A. BY YOKE B. BY HAND

(MUCH EASIER TO CARRY BUCKETS BY YOKE)

2. ALWAYS USE THE SAME BUCKETS OR PAILS FOR CARRYING WATER. DO NOT USE BUCKETS FOR ANYTHING ELSE. RACK PAILS UPSIDE DOWN ON HIGH SHELF WHEN NOT USING.



In carrying water to fill barrels or to fill containers in the house, the sanitation aide should teach the people to do these things:

1. Always use the same buckets or barrels to carry water in. The buckets should be kept clean. They should be hung up and covered when they are not being used.

2. The buckets should be covered while carrying water, - this will keep dirt out of the water.

Filtering water is sometimes needed to take out mud or other things in the water that wont settle by letting it stand in a barrel. Very often water from the roof will be dirty too. To make a water filter do these things:

1. Fix an oil drum like you would a water barrel, with a faucet on the bottom.

2. Fill the bottom of the barrel about 12 inches deep with rocks about one inch across.

3. On top of this put in about 6 inches of rocks $\frac{1}{2}$ inch across.

4. On top of this put in about 6 inches of coarse sand.

5. On top of this put in about 6 inches of fine sand (small).

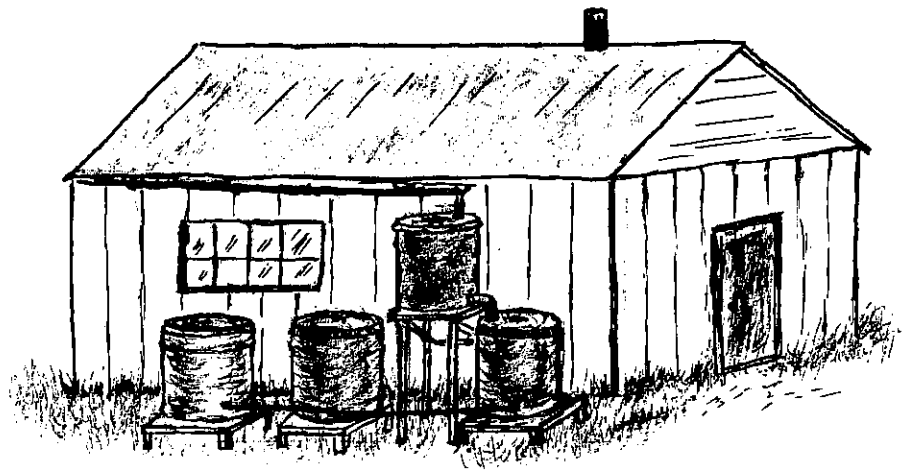
6. On top of the sand put a baffle. (shown in picture)

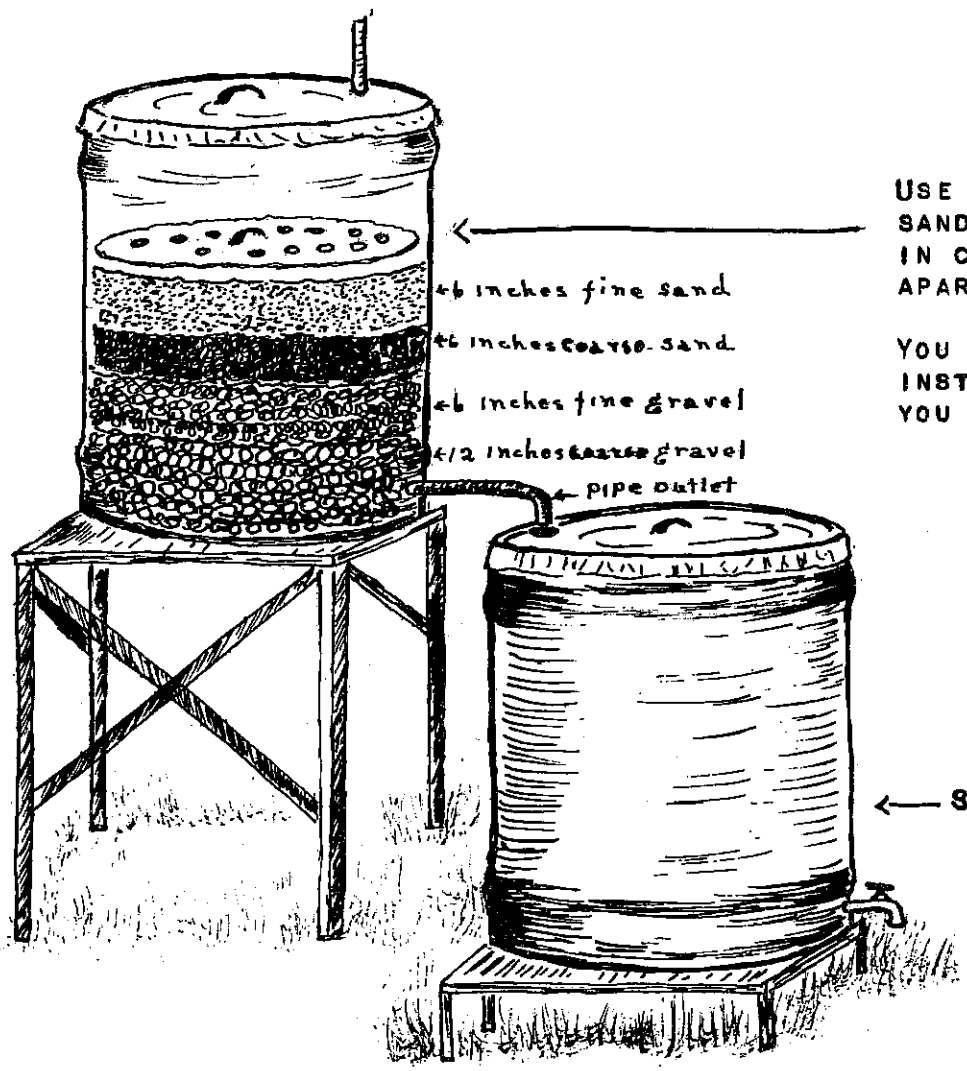
7. You can now pour water from your bucket into the top of the barrel, or use a pipe and connect the barrel to the down spout on the roof.

8. Sterilize the filter before you use it.

If the sand in the barrel gets dirty, scrape it off and put in new sand. The picture shows how to make a filter.

FILTER FOR RAIN BARREL TO MAKE WATER CLEAN





USE TOP OF DRUM TO COVER SAND. PUNCH LOTS OF HOLES IN COVER, ABOUT 3 INCHES APART.

YOU CAN USE ANOTHER DRUM INSTEAD OF A WOOD STAND IF YOU WANT TO.

Purifying water is needed when we know that the water is not safe to drink. That is why we purify water from lakes, streams, ponds, and other places where the water may get germs in it. It is a good idea to purify any water that you do not know is safe to drink. We cannot tell by looking at water if it has germs in it.

purify = to make safe or clean

One way to purify water is by putting chlorine in it. Chlorine is in the bleaches used to make clothes white. Chlorine can also be bought in cans that looks like sugar or salt. You buy chlorine when you buy these things:

Purex	H.T.H.
Clorox	Pittchler
Chlorinated lime	Sterichler

The can or bottle will tell you how much to use in drinking water. This chart will help you tell how much Purex or Clorox to put in the water to make it pure. The chlorine should stay in the water about 20 minutes before you drink it.

Use the table below to find out how much Clorox or Purex to put in the water to purify. Remember that the dirtier the water is, the more chlorine you should use.

	Amount of Clorox or Purex	
Amount of Water	Clear Water	Colored water
1 Quart	1 Drop	2 Drops
1 Gallon	6 Drops	8 Drops
5 Gallons	1/3 Teaspoon	2/3 Teaspoon
50 Gallons	1 Tablespoon	2 Tablespoons

If powdered chlorine is used follow the directions on the can for making 5.5 percent solution. Use it just like Clorox or Purex after you have made the solution.

The chlorine taste in the water will go away if it sits over night. After 20 minutes, we may pour the water from one pan to another. This will also help take the taste away.

Another way to purify water is by boiling it. Water should be boiled for 1 - 5 minutes. This can be done anywhere and does not cost anything. The flat taste of boiled water can be taken away by pouring it back and forth from one clean pan to another.

Another way that water can be purified is by putting iodine pills in the water. These are sometimes hard to buy. They are not found as easily as chlorine. If iodine pills are used, follow the instructions on the bottle. Iodine pills are sometimes good to use because they do not take much room.

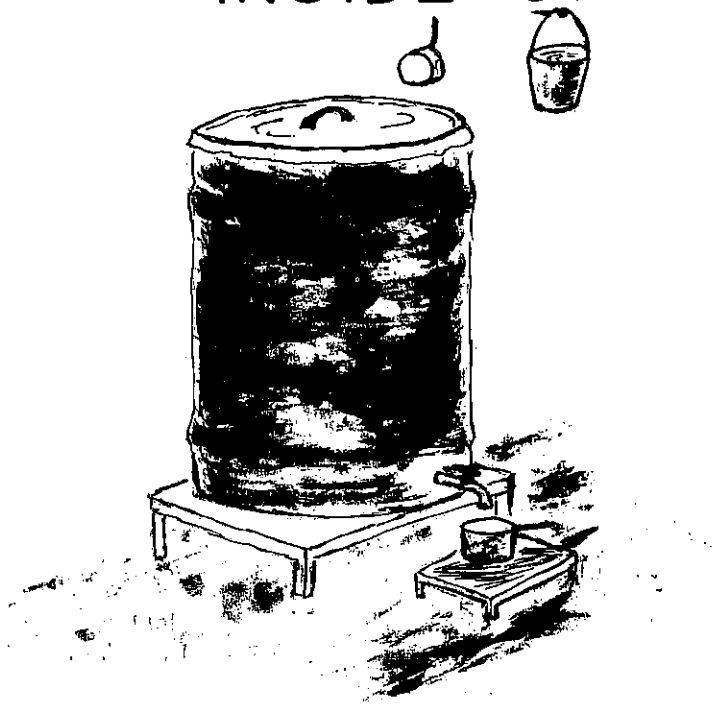
"Halazone" pills can also be used to purify water. These are pills that can be carried easily, but are sometimes hard to find. Follow the instructions on the bottle if you use "Halazone."

How much water is needed for the family is a question very often asked. If people have all the water they want, quite a bit is used. When people have to carry water they do not use very much. When a person carries water he uses about 3 to 6 gallons each day. If people have water piped into their houses, each person uses about 25 to 50 gallons each day.

The chart shows about how much water is used each day by one person when he carries water:

Drinking	2 pints
Cooking	2 quarts
Washing ourselves	1 gallon
Laundry & Dish washing	2 gallons
	3 3/4 gallons each day

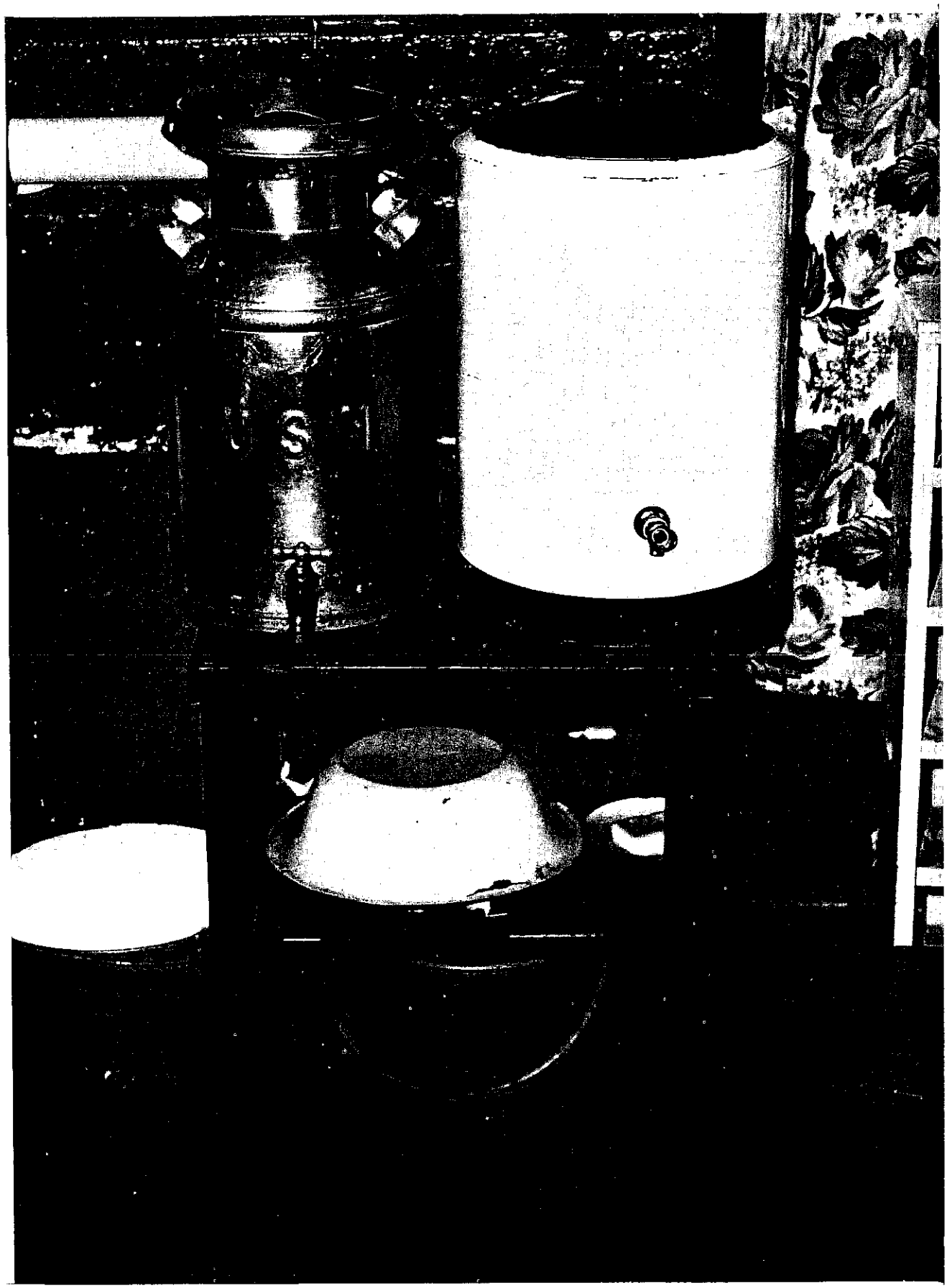
HOW TO KEEP WATER CLEAN INSIDE OF HOUSE



1. KEEP COVER ON BARREL.
2. WHEN POURING WATER INTO BARREL, HANG COVER ON WALL
3. USE FAUCET TO GET WATER FROM BARREL.
4. PUT BARREL UP OFF FLOOR, ON LEGS OR STOOL, SO PANS WILL GO UNDER.
5. KEEP PANS OFF OF FLOOR.
6. HANG PAIL OR PAN FOR WATER ON WALL. USE IT ONLY FOR CARRYING WATER.

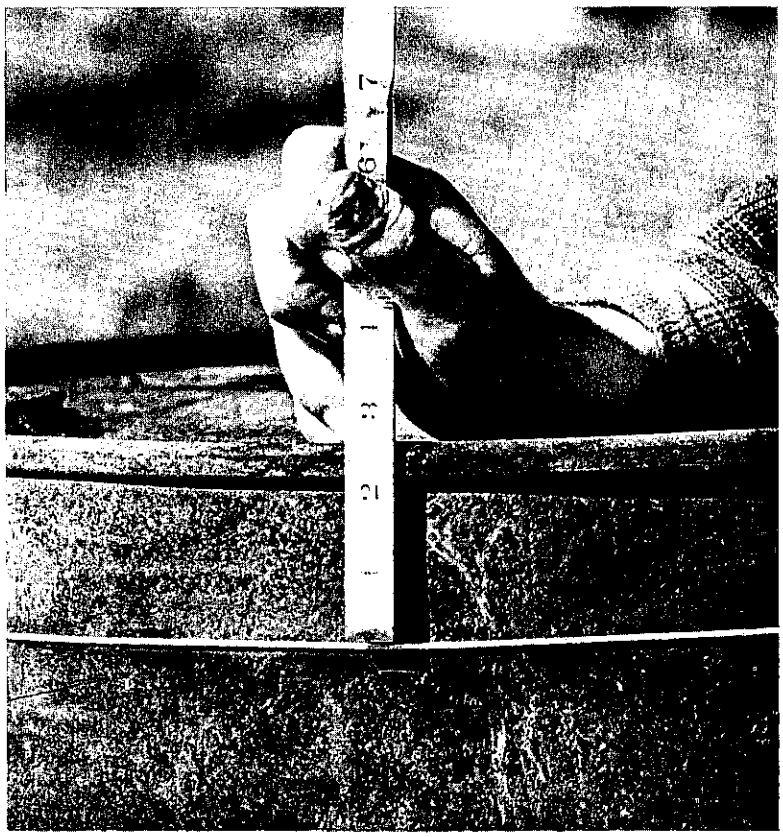
HOW TO FIX OIL DRUM FOR A WATER BARREL

1. CUT TOP OFF OF BARREL AND FIX COVER.
2. BUILD FIRE INSIDE TO BURN OUT OIL OR GAS.
3. PUT IN FAUCET.
4. WASH OUT WITH CLEAN WATER AND SOAP.
5. PAINT INSIDE AND OUT WITH ALUMINUM PAINT, IF YOU CAN GET THE PAINT.
6. STERILIZE WITH CLOROX OR PUREX.



A GOOD WAY TO KEEP WATER WE HAVE BOILED FOR DRINKING.

INDOOR STORAGE OF WATER.



1. MEASURE DOWN $2\frac{1}{2}$ INCHES FROM TOP

2. MARK A LINE AROUND THE BARREL

3. CUT ALONG LINE WITH COLD CHISEL OR HACKSAW

4. TOP. ALL CUT OFF

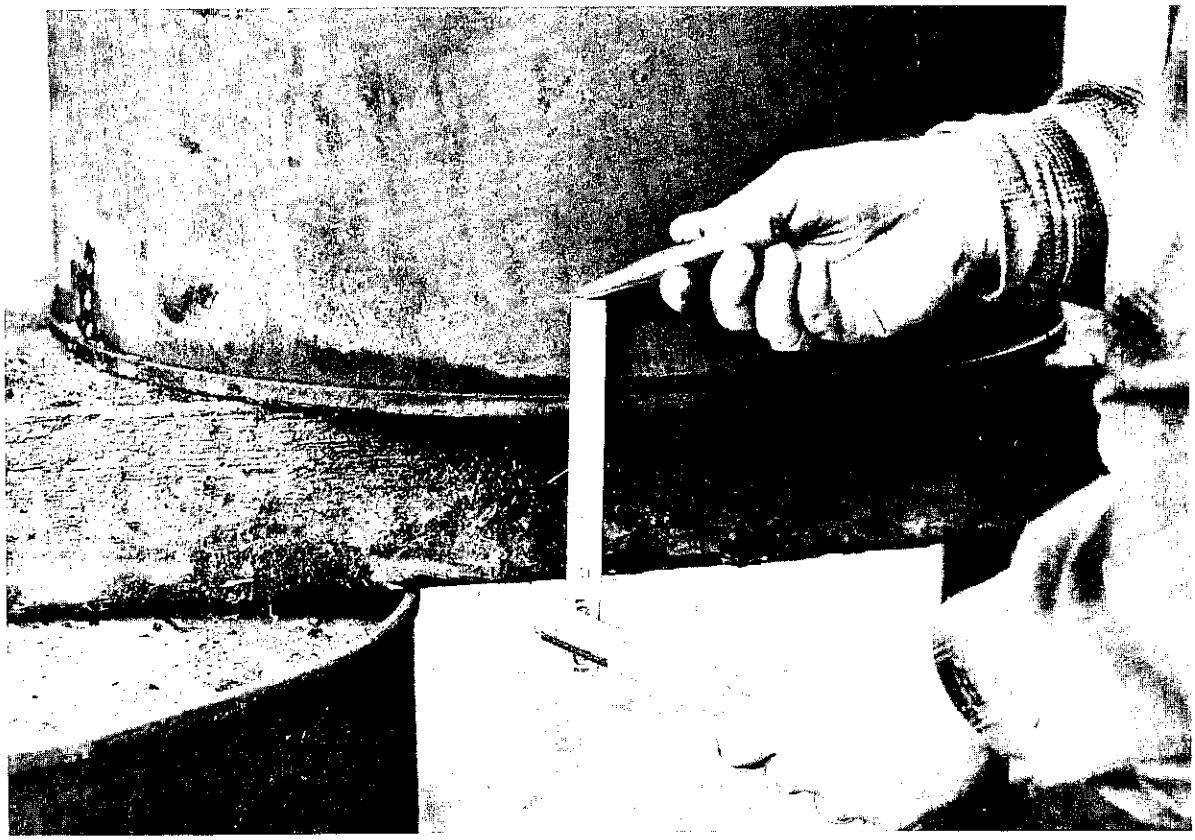
5. SMOOTH SHARP EDGES WITH FILE

6. POUND TOP EDGE SO IT BENDS OUT

7. BEND TOP EDGE OF BARREL IN, USING TWO HAMMERS

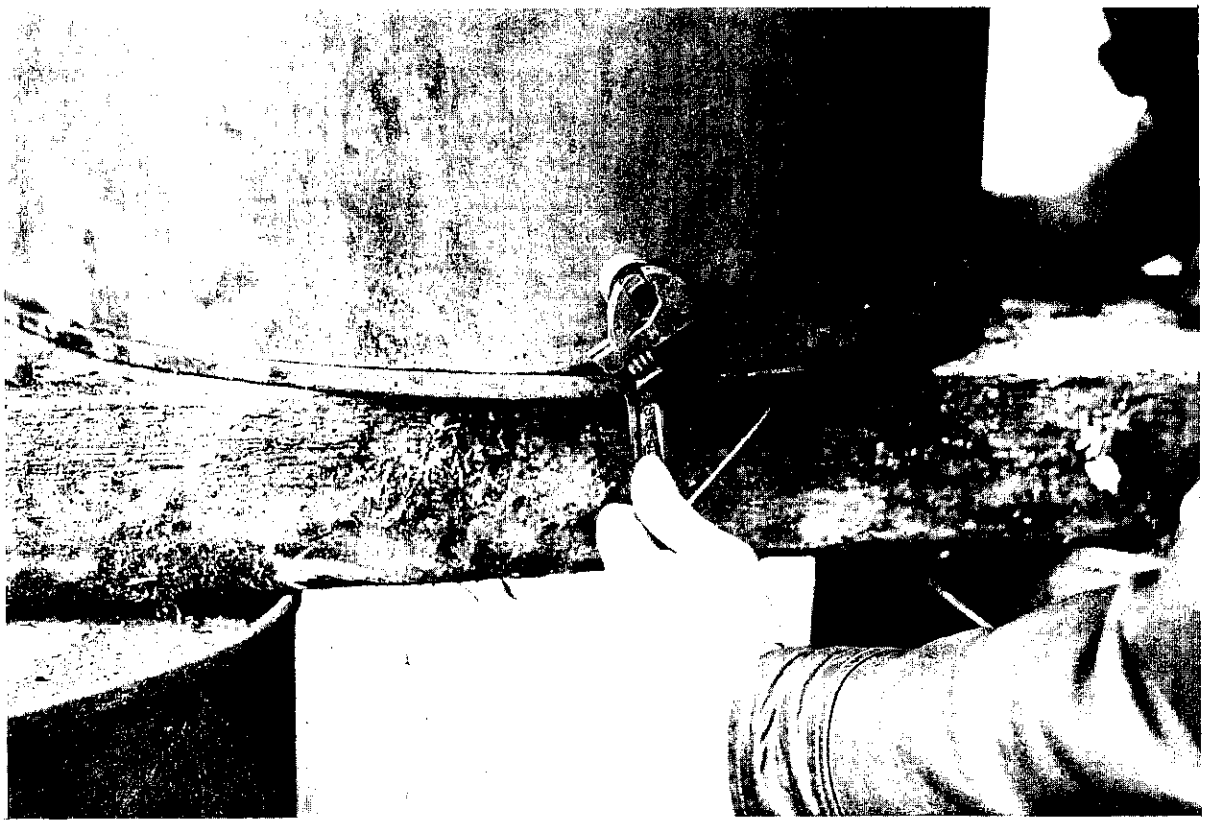
8. FIT ON COVER PART - MAKE SURE IT FITS GOOD

9. BURN OUT GAS OR OIL INSIDE BARREL

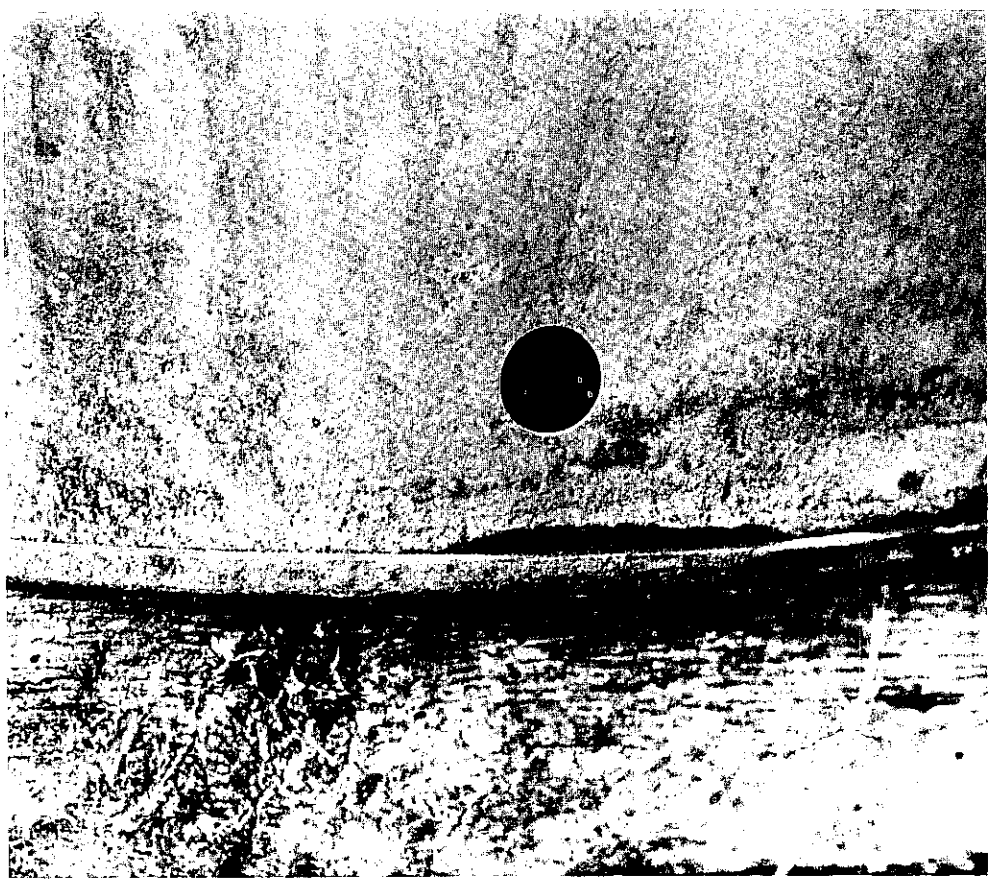


10. MEASURE UP 2 INCHES FROM BOTTOM AND MARK POINT

11. HAMMER PUNCH THROUGH TO MAKE HOLE

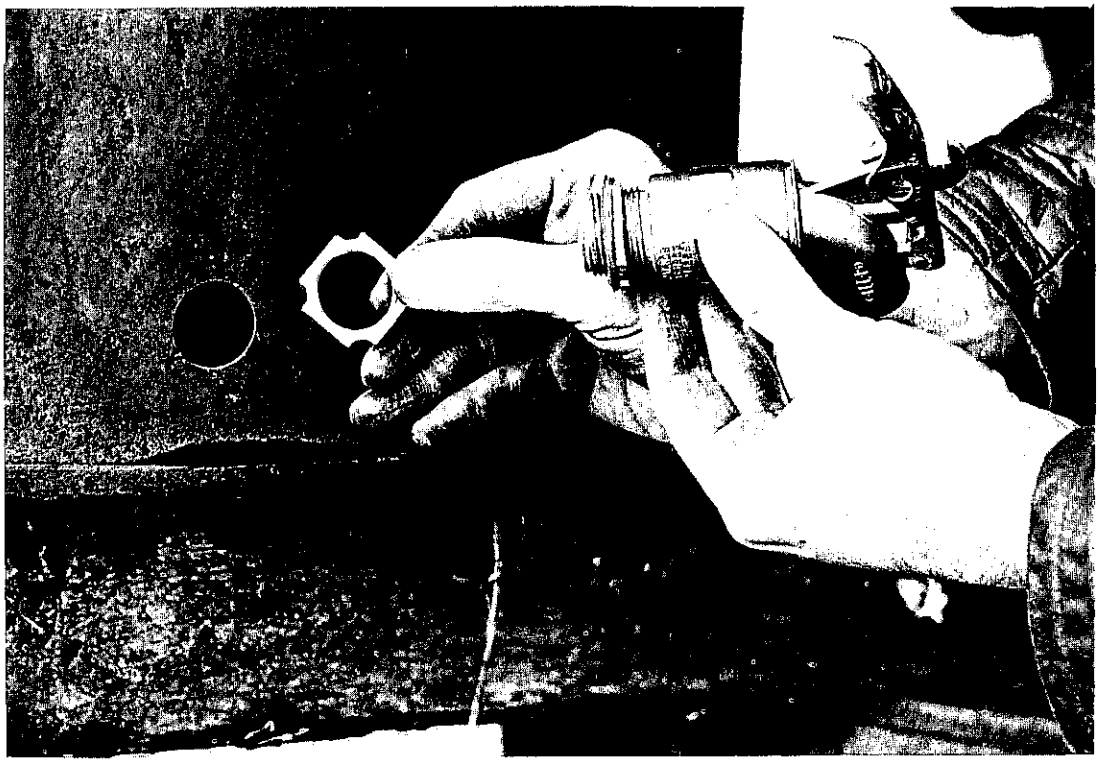


12. MAKE 3/4 INCH HOLE WITH KNOCKOUT PUNCH

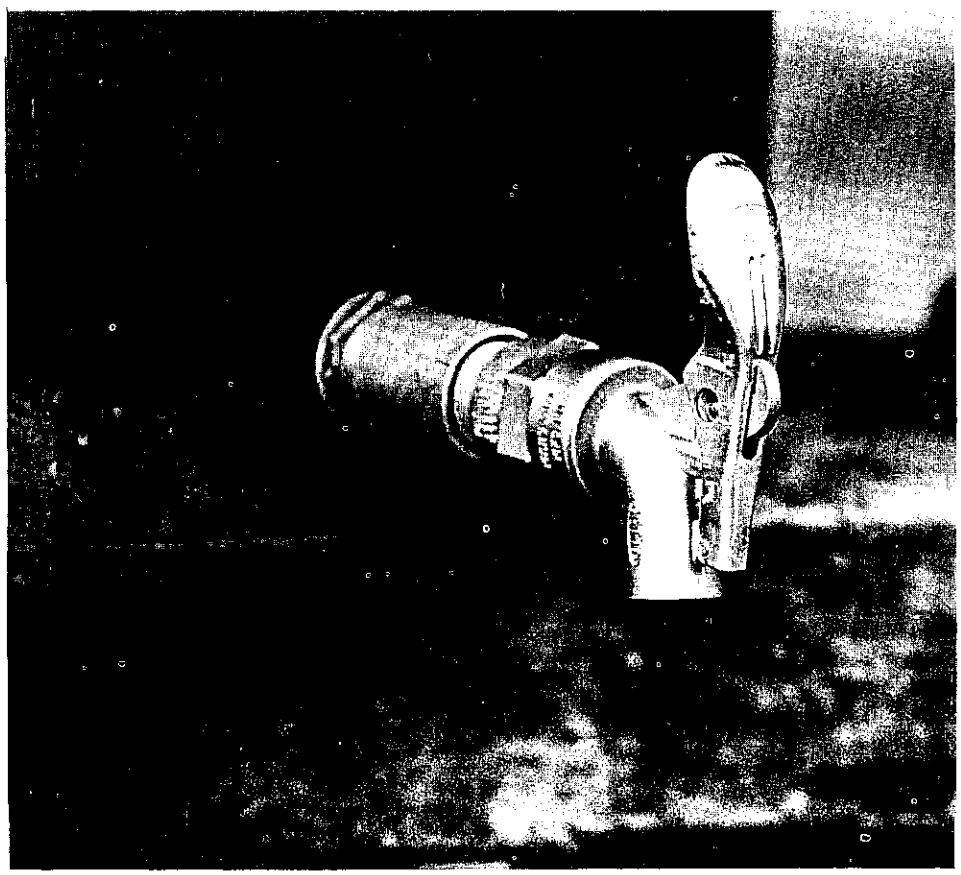


13. FINISHED 3/4 INCH HOLE

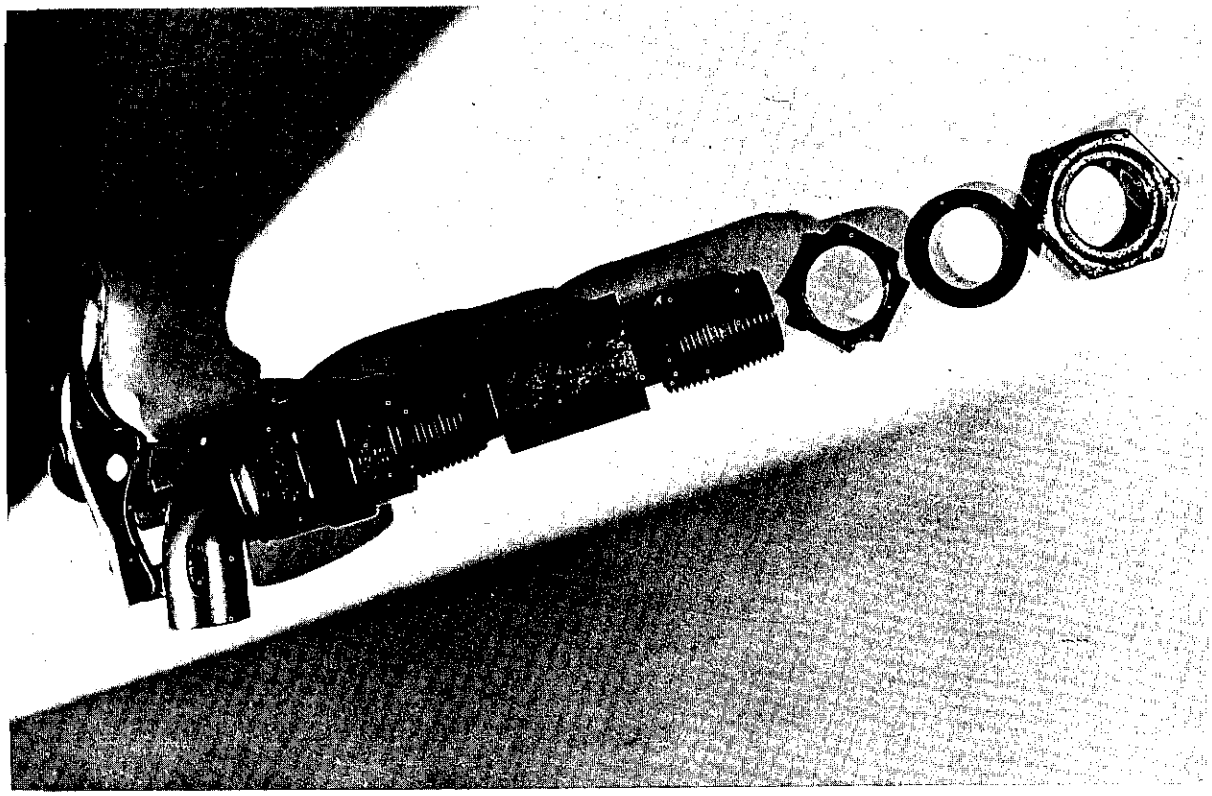
NOTE: *Page 110 deleted. Same pictures appear on Page 112.*



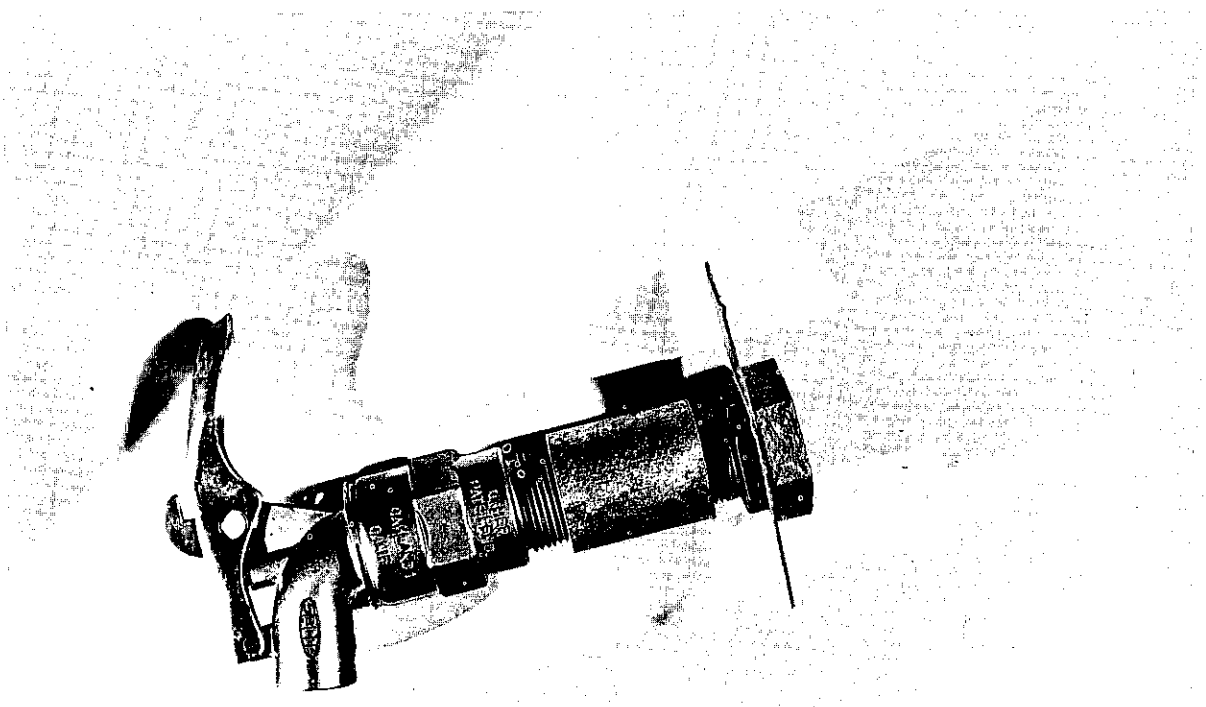
16. ONE NUT AND RUBBER WASHER GO ON FAUCET OUTSIDE, OTHER WASHER INSIDE, YOU CAN USE TWO RUBBER WASHERS, ONE INSIDE AND ONE OUTSIDE BARREL



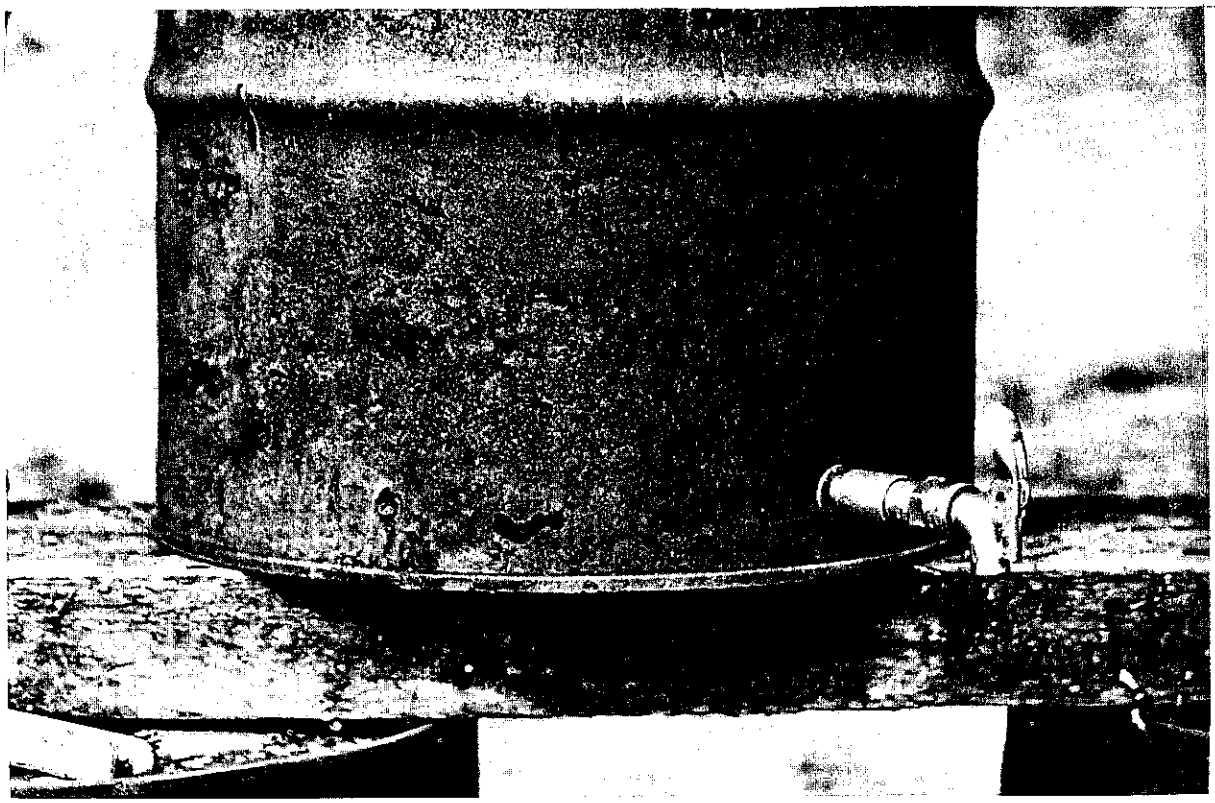
17. FINISHED FAUCET ON BARREL



18. ANOTHER WAY TO PUT FAUCET ON



19. SCREW THEM ON THIS WAY

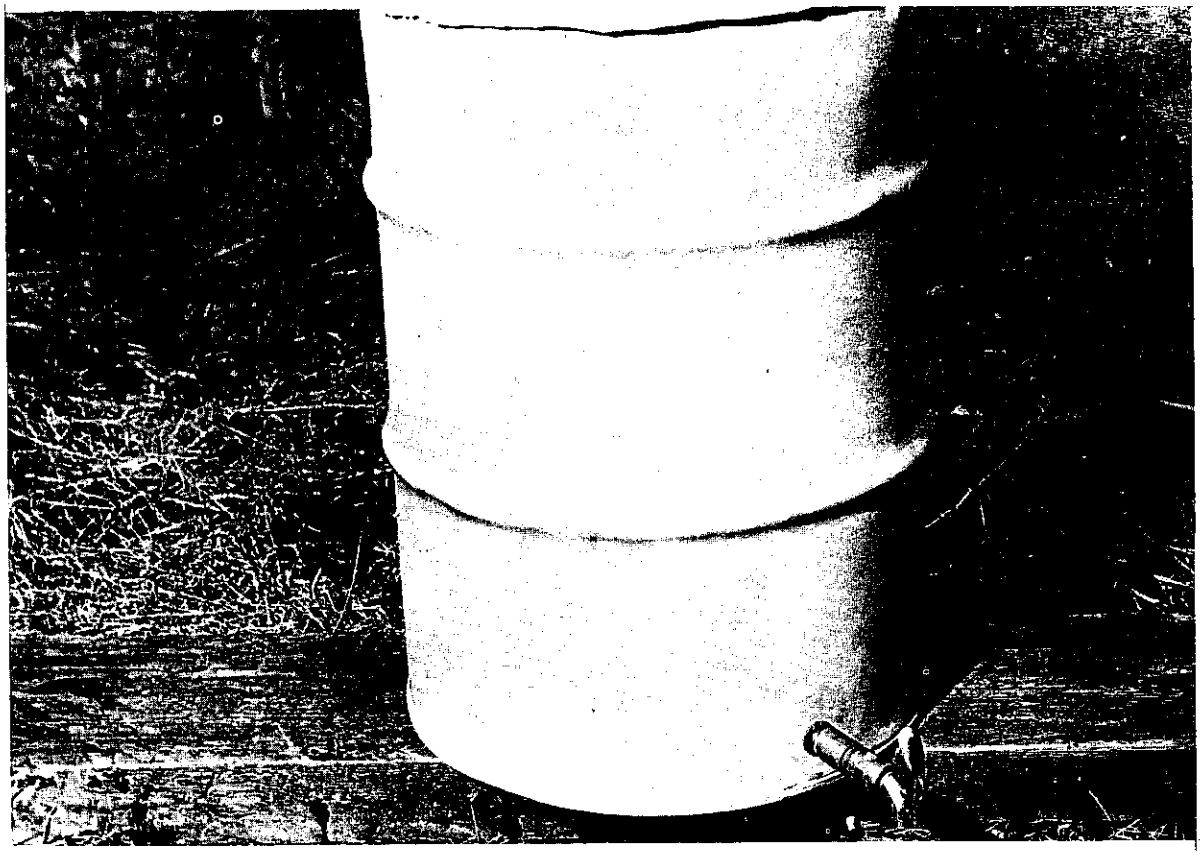


20. FAUCET PUT ON TO DRUM

21. USE WIRE BRUSH TO CLEAN INSIDE AND OUTSIDE, THEN WASH INSIDE WITH SOAP AND HOT WATER AND RINSE OUT.

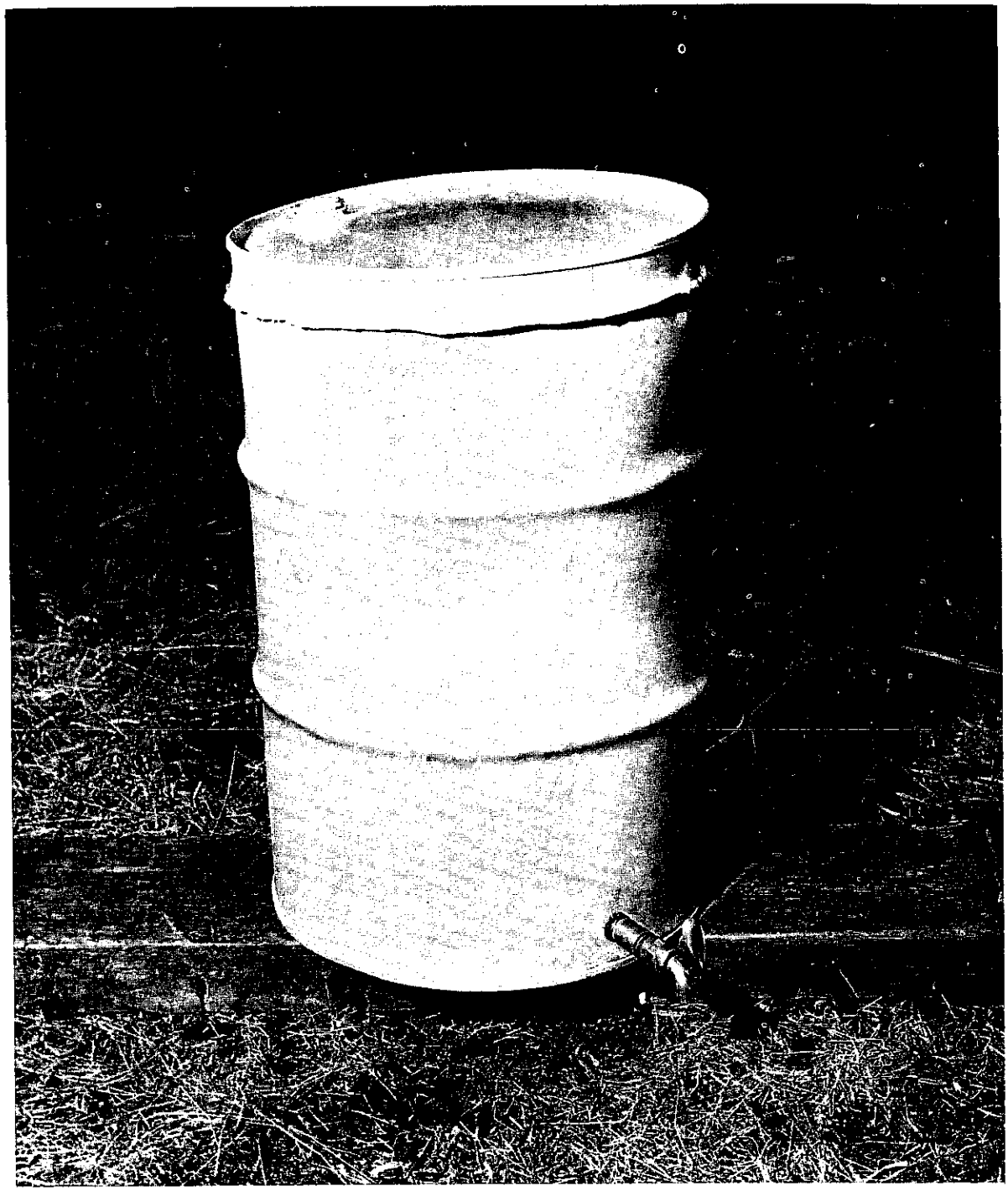
22. LET BARREL DRY, THEN PAINT OUTSIDE WITH ALUMINUM PAINT

23. PAINT INSIDE WITH ALUMINUM OR ASPHALT PAINT

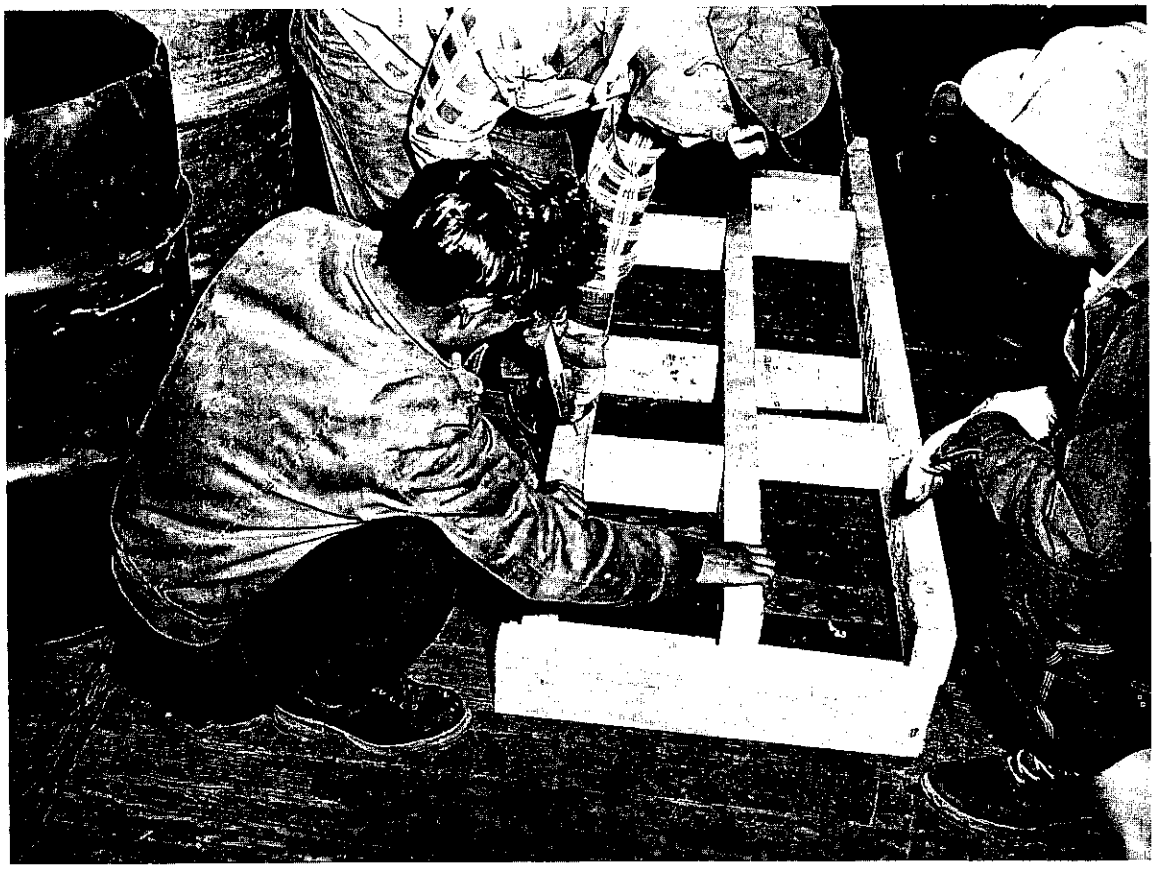


24. ALL PAINTED

25. BE SURE TO PAINT COVER, INSIDE AND OUT

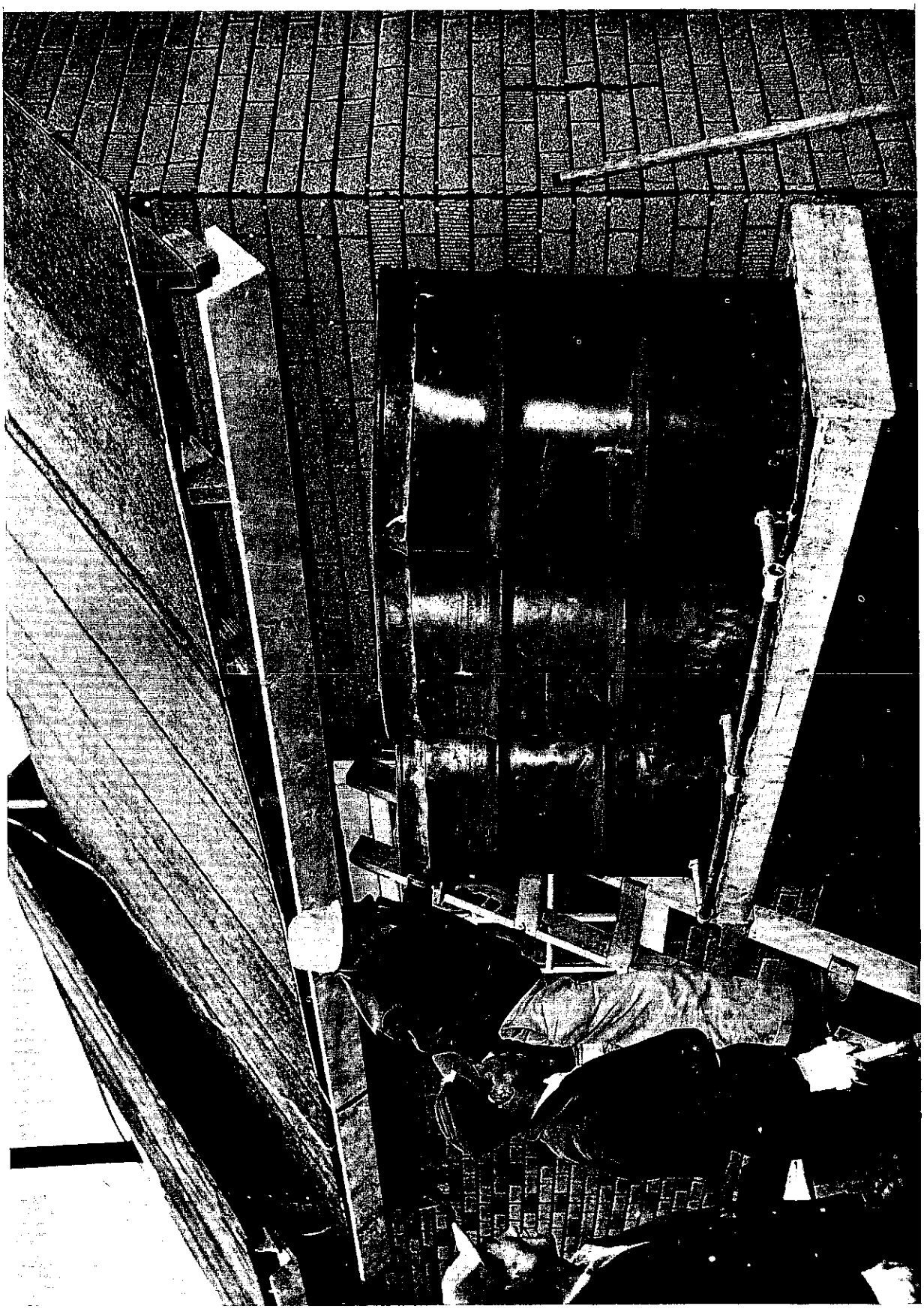


26. ALL DONE AND READY TO USE, BEFORE YOU USE IT, BE SURE TO RINSE IT OUT WITH CLOROX SOLUTION. THEN YOU CAN USE IT FOR CATCHING RAINWATER OR FOR STORING WATER INSIDE THE HOUSE

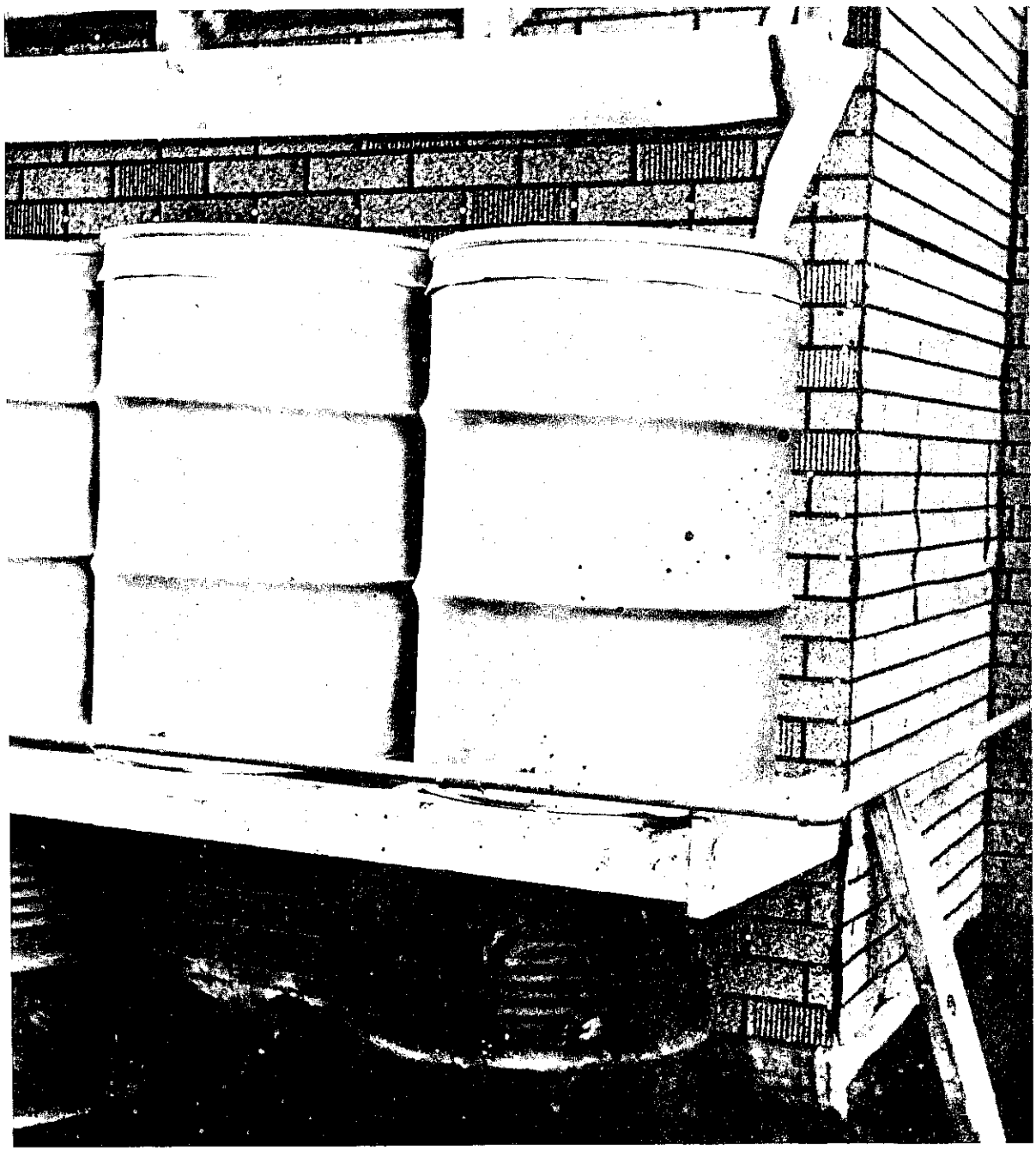


MAKING WATER BARREL STAND

CLEARING AWAY DIRT FOR WATER BARREL STAND



SANITATION AIDES INSTALLING WATER BARRELS.



RAIN BARREL INSTALLATION COMPLETED, PIPE CARRIES WATER INTO HOUSE.

SECTION 7

TYPES OF HUMAN & ANIMAL WASTE DISPOSAL SYSTEMS: WHEN AND HOW TO BUILD THEM

Septic Tanks

We have learned why it is important to put human and animal waste where it cannot cause sickness. One way of doing this is to put human wastes in what is called a septic tank. A septic tank needs running water in the house to work. With septic tanks we have plumbing inside the house.

Septic tanks can be used in Alaska when "perma-frost" or "frost-heave" will permit them to be built. Septic tanks should not be used farther north than Anchorage. They can be used in the Aleutians, Southeast Alaska, and south of Anchorage in the Southcentral region.

If someone wants to build a septic tank in the village, these are the things you should tell him:

1. Do not build the tank in low places where water might cover the tank.

2. The tank should not be closer than 50 feet from any place where people get water.

3. The tank should be at least 5 feet from the building.

4. The septic tank should always be down hill from where people get water.

Water that goes into the septic tank must also go out. It is not good to have this water run on top of the ground. Water from septic tanks can be gotten rid of two ways:

1. Water from the tank goes into the ground through pipes laid in trenches filled with gravel or sand.

2. Water from the tank goes into "seepage pits."

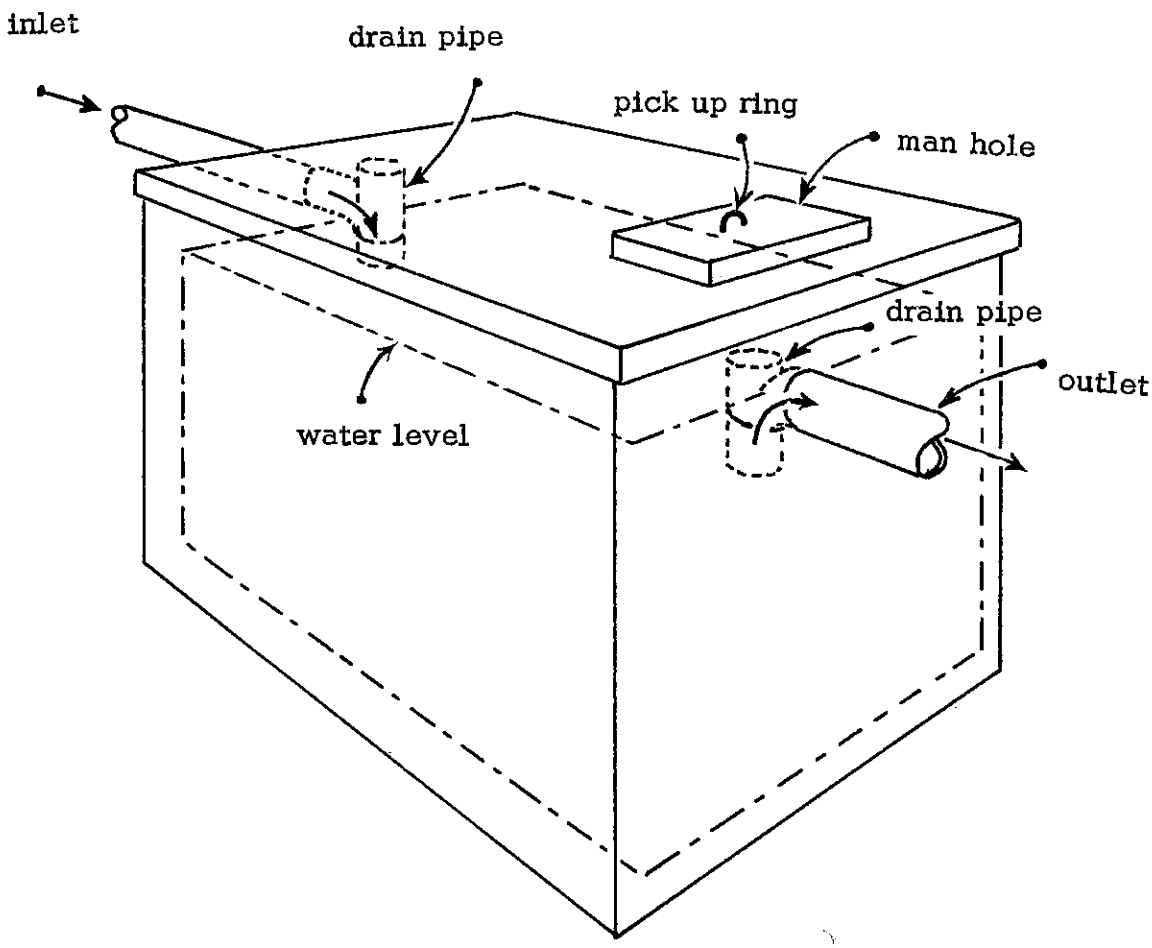
Remember to tell people to do these things when they build a seepage pit or put pipe in the ground to get rid of water from the septic tank:

1. Do not put the pit or pipes closer than 100 feet from where people get water.

The drawings of a septic tank, seepage pit and filter trench show how these are made.

If any of your people want to put in a septic tank, ask your supervisor to help you make a plan.

SEPTIC TANK


inlet
drain pipe
pick up ring
man hole
drain pipe
outlet
water level

TYPICAL SEEPAGE PIT