

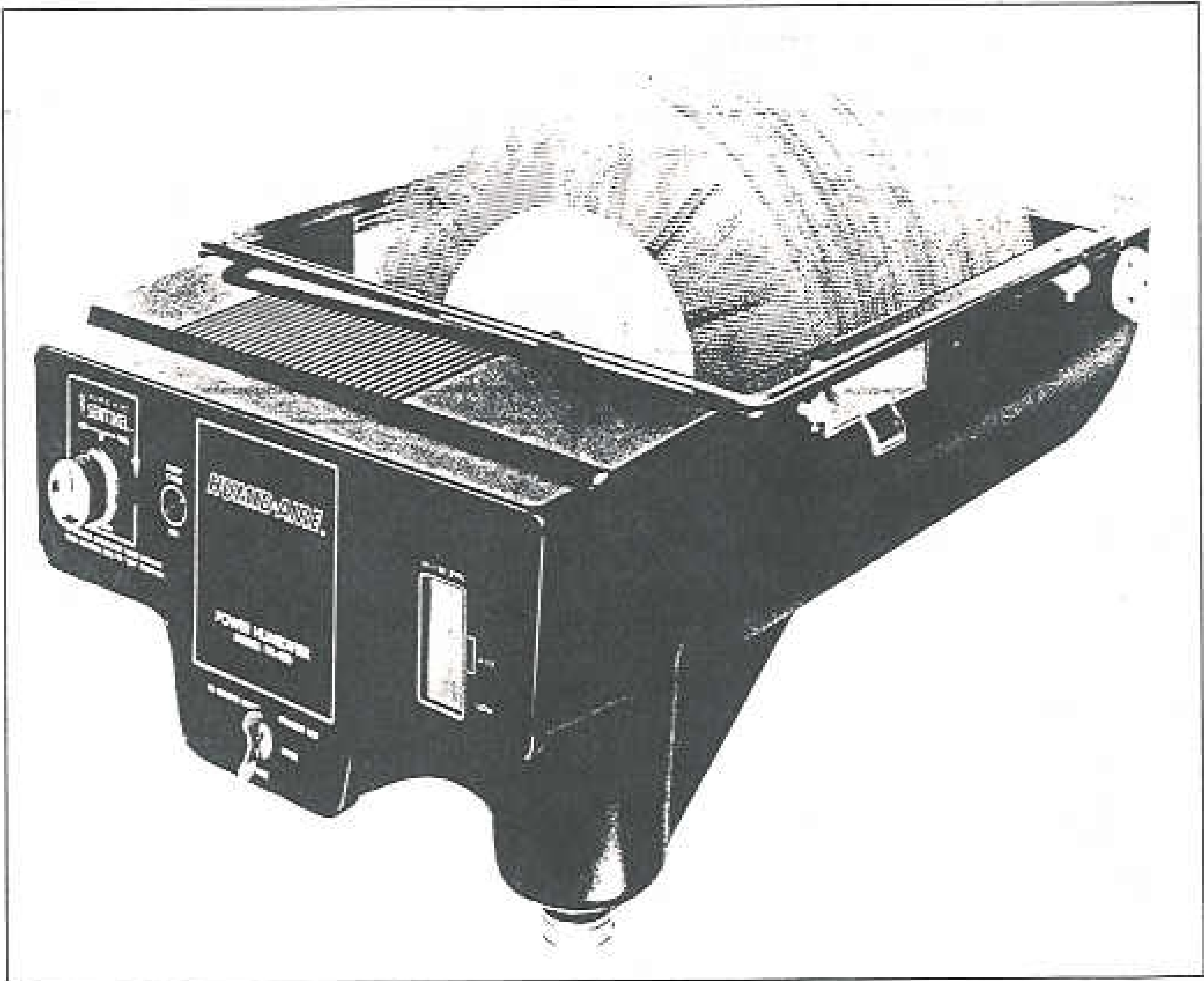


ADAMS

HUMID AIRE®

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

Model FH-400 Series



ADAMS MANUFACTURING CO.

HUMID AIRE DIVISION

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HUMIDIFIER INSTALLATION

Instructions and Service Guide

Installation instructions for installing on warm air Ducts.

STEP ONE

The humidifier is designed for installation in any Hot Air Duct of your forced air furnace. Examine the duct-work leading horizontally from your furnace and select a hot air duct at least 13 inches wide and as close to the furnace proper as you can conveniently work. Recirculation by the furnace blower will keep an even humidity throughout your home regardless of the duct used.

Attach the paper template supplied to the duct by stripping off the cover over the strips of adhesive on the back side of the template and placing it on the duct. Position the template at the right angle position as shown in Fig. 1.

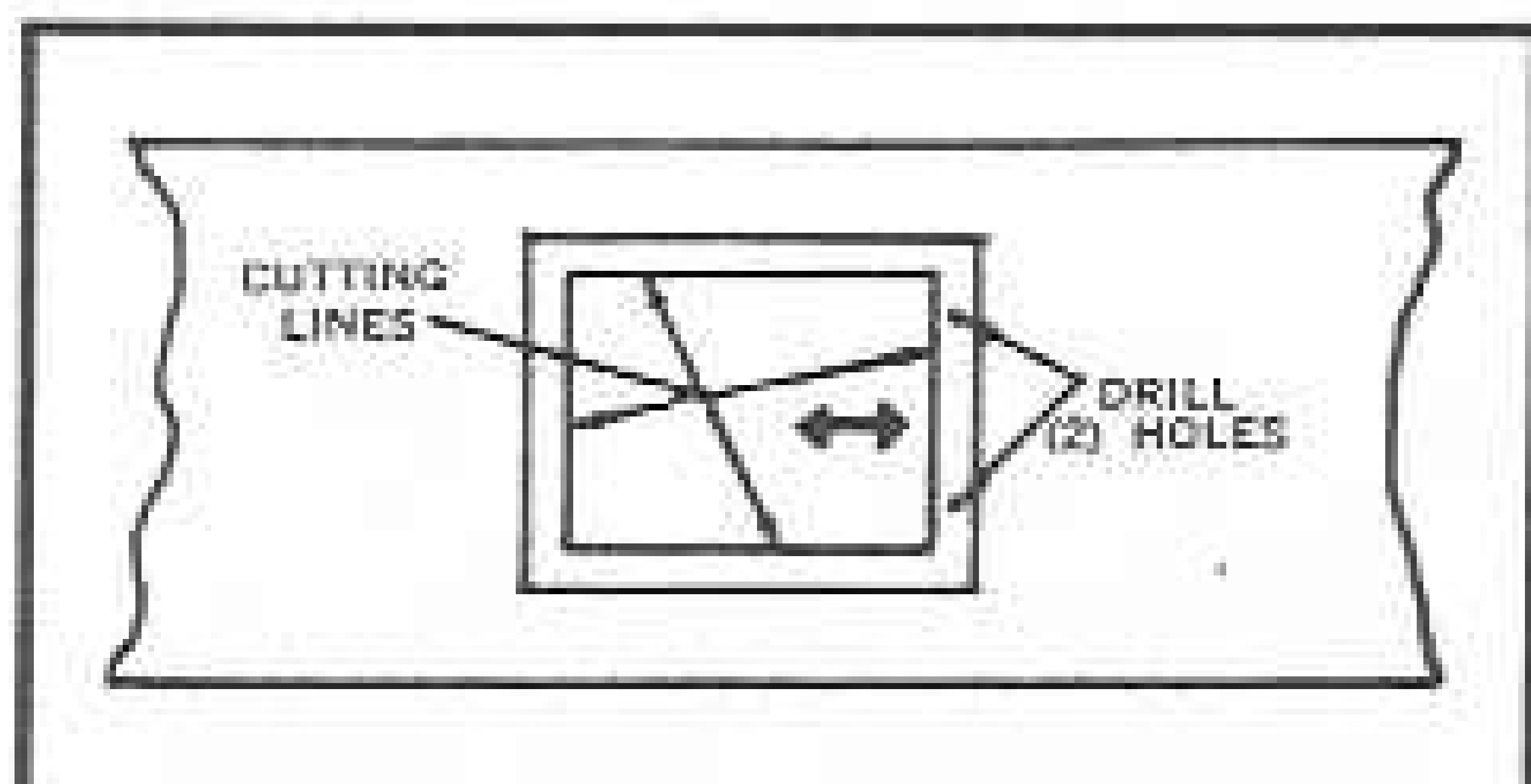


FIG. 1

STEP TWO

Center punch and drill the 2 holes as indicated in Fig. 1. A $\frac{1}{4}$ " drill is required.

STEP THREE

If you have them available, use both left and right hand tin snips to cut the rectangular opening in the duct. The opening may be cut with regular snips, but it's easier to use the right and left hand snips.

To start cutting, drill a hole large enough to accept the point of the tin snips inside the shaded rectangular area indicated by the dotted line.

Proceed cutting on the dotted line and cut out the complete shaded area.

You are now at the most important point of the installation! An air deflector is included with your FH-400; and is very important to place the deflector in the roof of the duct so that the free end of deflector aligns with center of humidifier. Cut the deflector on the lines indicated for the correct duct height. Use the two sheet metal screws (packed with the fasteners) to mount this deflector. Mount the deflector at a right angle to the air flow in the duct as shown in Fig. 2.

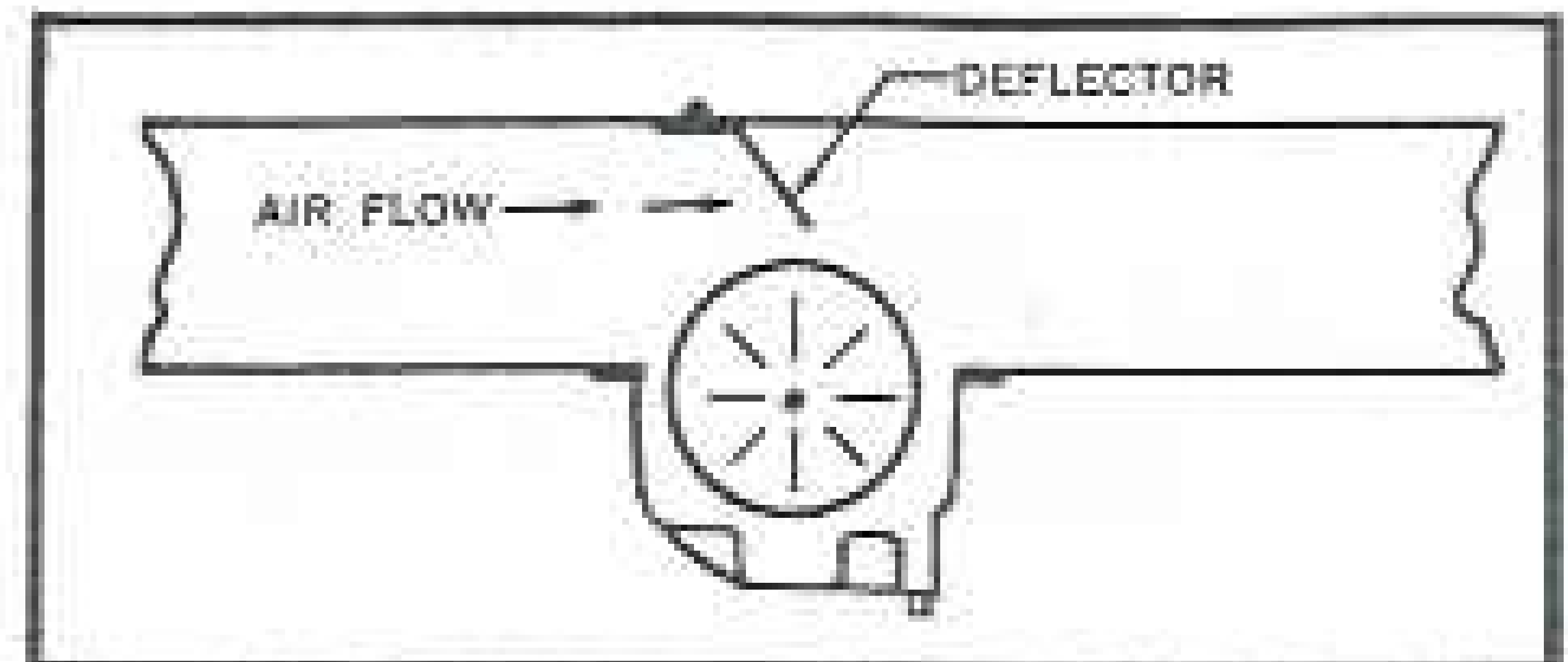


FIG. 2

STEP FOUR

As shown in Fig. 3, insert the metal frame into the opening, slide the mounting rail over one edge of the duct and lower it so that the (2) bolts protrude down through the holes that you drilled previously. Push or spin two speed nuts (included in parts bag) onto the two bolts and snug up. This insures that the frame will stay in place when the humidifier is raised into position.

The metal frame will not only support the reservoir, but will strengthen the duct-work.

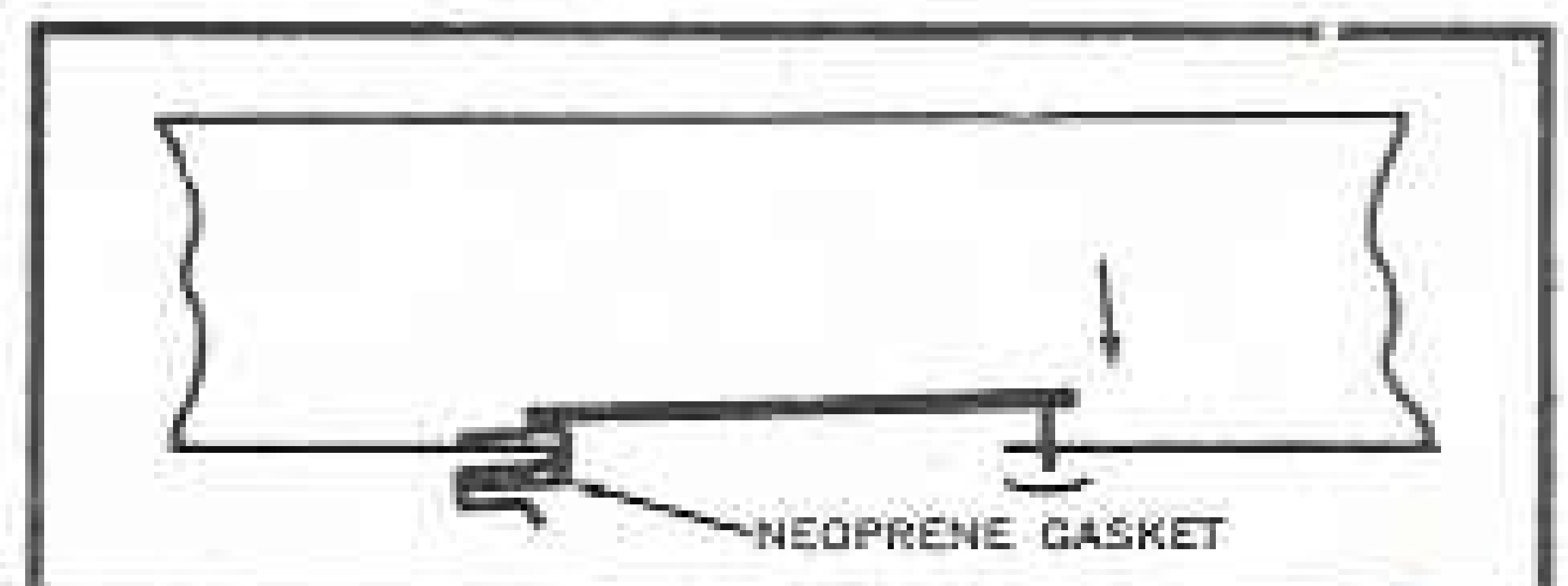


FIG. 3

STEP FIVE

Four lengths of special neoprene gasket material are provided. After frame is in place, fit each length of gasket material to the duct, flush with the edges of the opening. One long gasket is to be placed on the upper surface of the mounting frame channel. (See Figs. 3 and 4). Note that the gasket has a backing which covers pressure sensitive adhesive. Peel off this backing and place each length of gasket in position.

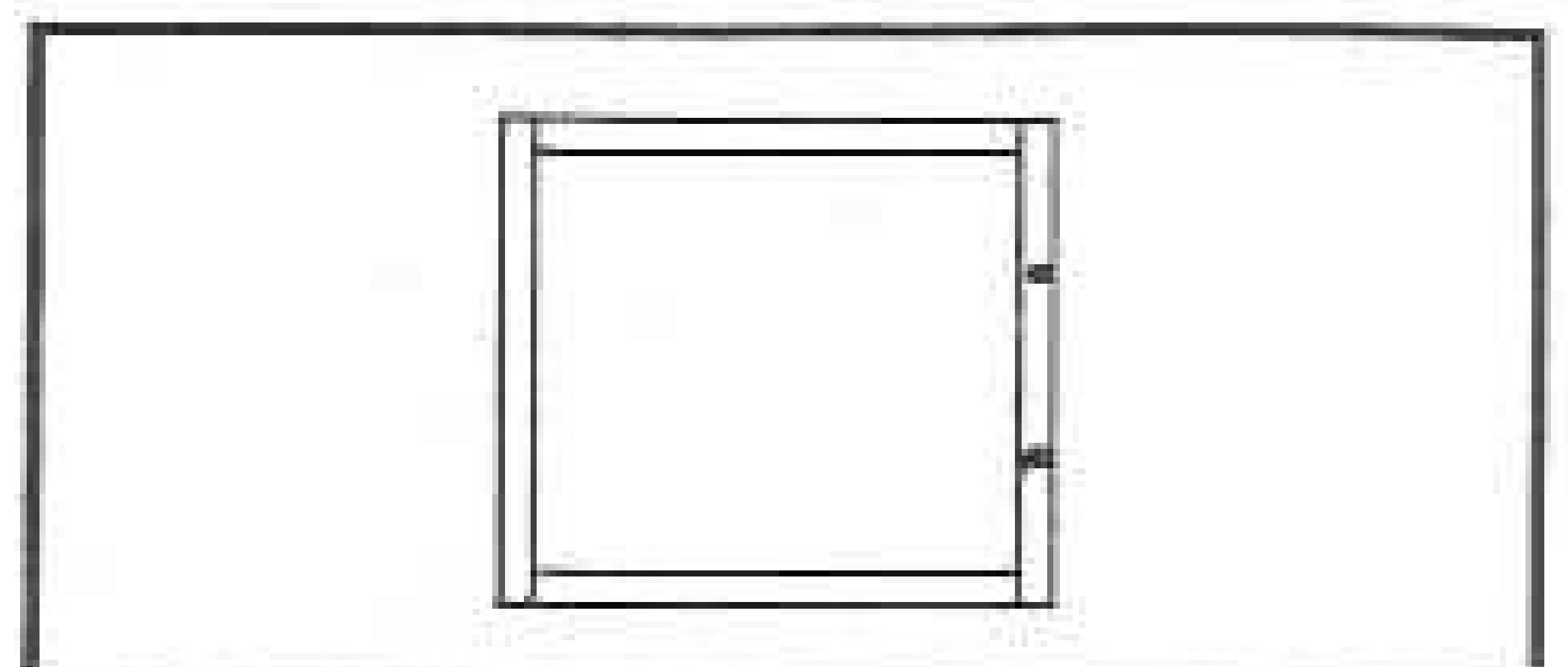


FIG. 4

STEP SIX

Carefully slip the humidifier flange into the space provided on the rail of the mounting frame. Now pivot the reservoir into its final position and tighten two knurled nuts into position. Fig. 5.

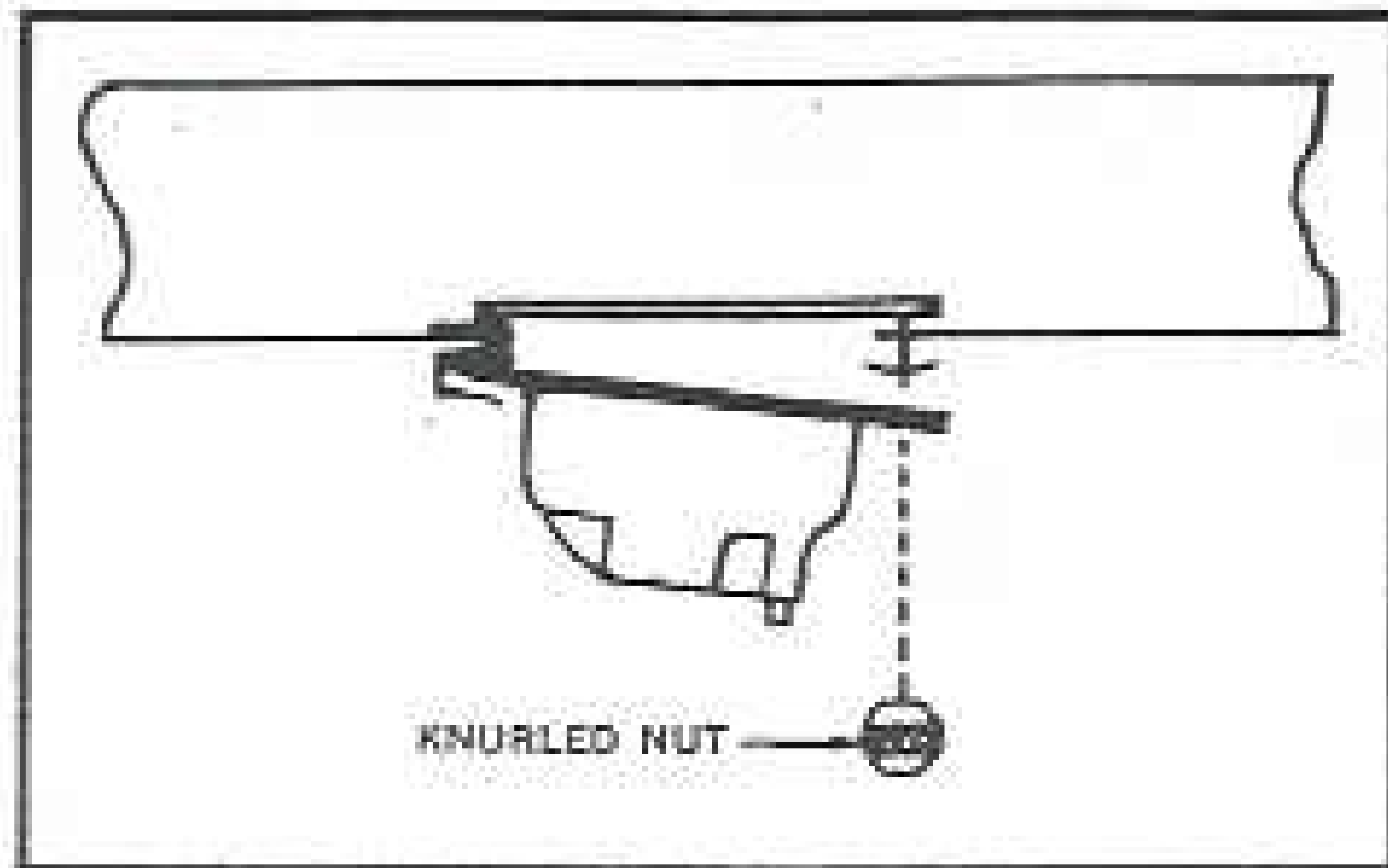


FIG. 5

STEP SEVEN

Attach the saddle-valve included to the nearest cold water pipe available and run copper tubing from the saddle-valve to the water inlet on your humidifier. A wing nut type compression nut and ring for attaching the tubing to the water inlet are provided. (The required length of tubing can be purchased at any hardware or plumbing supply store.) (See Fig. 6)

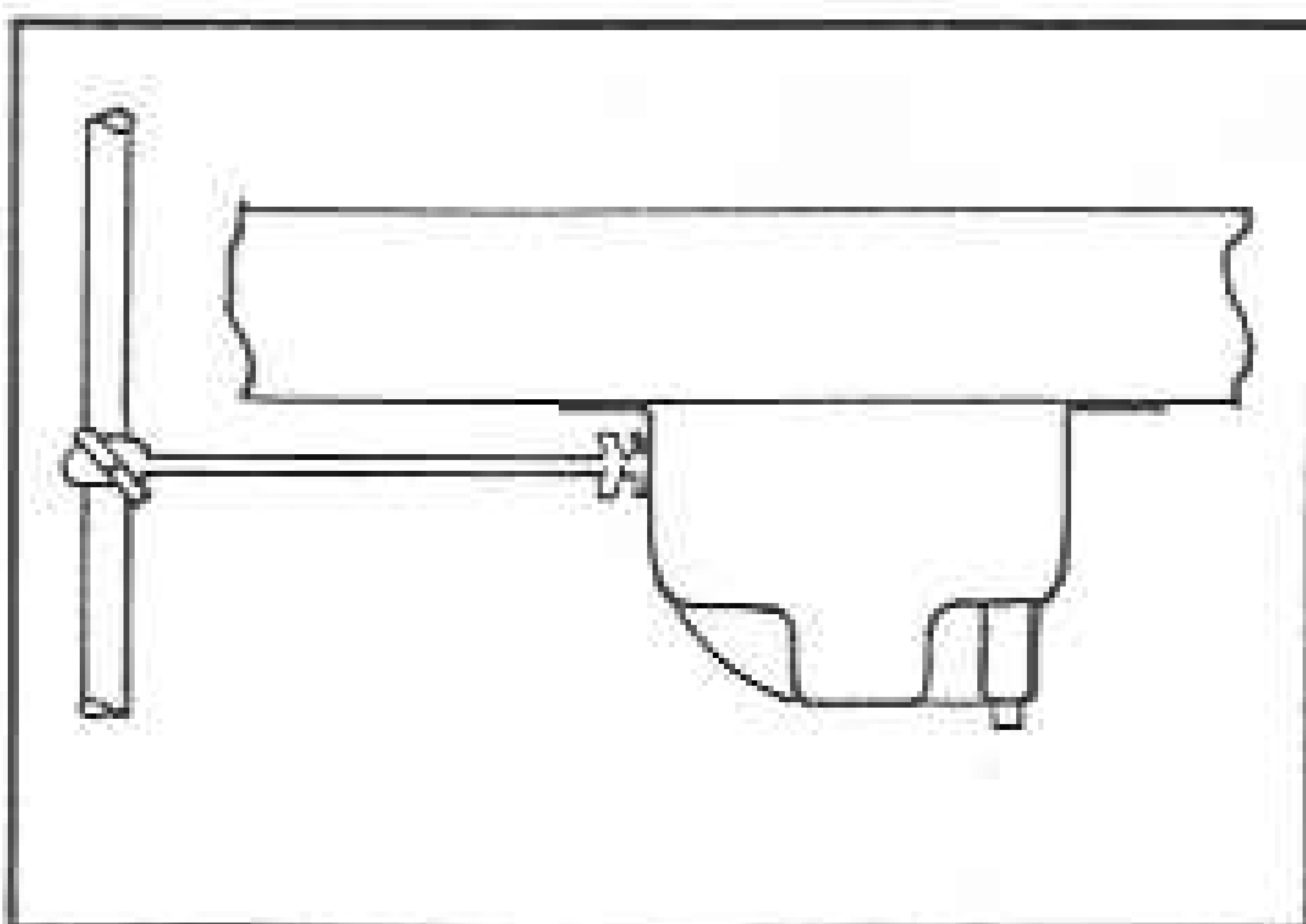


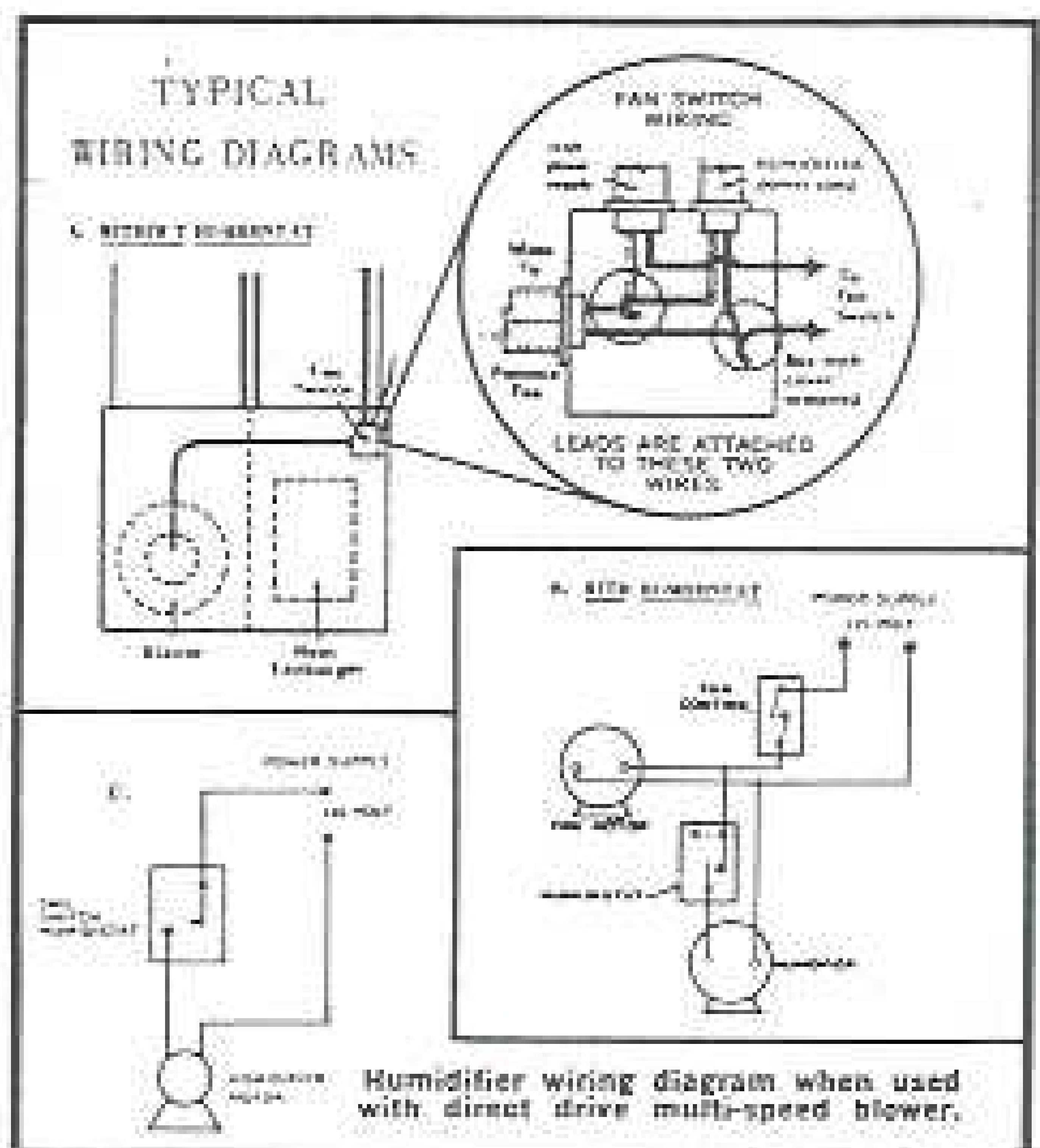
FIG. 6

STEP EIGHT

Since your HUMID-AIRE operates only when your furnace fan is running, the supply cord coming from the HUMID-AIRE motor must be attached to the fan control switch on your furnace. **CAUTION:** BE SURE YOU HAVE REMOVED THE FUSE CONTROLLING THE FAN FROM THE MAIN ELECTRICAL SWITCH BOX, BEFORE MAKING THE CONNECTION. YOU ARE WORKING WITH 115 VOLTS. AFTER MAKING THE CONNECTION, BE SURE TO REPLACE THE FUSE.

IMPORTANT—When installing HUMID-AIRE FH-400 on furnaces with multi-speed blowers, to avoid burning out the humidifier drive motor, a sail-switch Humidistat (H-352) should be installed. Do not connect the FH-400 to the low speed side of the fan relay. Humidifier drive motor cannot be guaranteed if installed in this manner. (SEE DIAGRAM C.)

Furnaces are different but a general rule is this: Wire the HUMID-AIRE power cord leads IN PARALLEL with the two wires coming from the furnace blower. These wires usually lead into a switch box on the side of the furnace, or inside the front panel.



STEP NINE

Start enjoying properly humidified air, automatically, all winter long... for years.

INSTALLATION INSTRUCTIONS

For installing on the warm air plenum

STEP ONE THE PLENUM ADAPTOR

The plenum adaptor allows the humidifier to be installed on the side of the hot air plenum, on the actual jacket of the furnace itself, or on any other suitable vertical surface.

The principle of the adaptor is simple. Hot, dry air is forced by the blower into the adaptor hood, where the moistened discs are turning. The air picks up moisture and then passes into the cold air return. There the moistened air mixes up with other air and in two or three seconds has passed around the heat exchanger and is on its way into the home.

This circulation occurs because the furnace blower creates pressure on the hot air, or supply, side of the furnace and at the same time creates a suction on the cold air side.

No harm can come to the furnace or heat exchanger because of this moistened air, as the moisture is in vapor form. Actually, much higher humidities, and more actual moisture, are passed through the furnace during hot humid summer weather than when the humidifier is working.

STEP TWO MOUNTING THE ADAPTOR

On occasion, when there is no possible way to mount the adaptor on the hot air supply side of the furnace, a successful installation can be made with the adaptor mounted on the cold air return plenum, and the hot air ducted to the adaptor. The distance the hot air is ducted, however, must be kept as short as possible. The sharp drop in temperature caused by ducting of the hot air will drastically affect the air's capacity to absorb moisture.

The only critical point in mounting a plenum adaptor is cutting the opening which allows the hot air to enter the adaptor. This opening should be only $5\frac{1}{4}$ " wide, and 4" high and out

collar and the cold air plenum. See the drawing in Figs. 9 and 10. Raising the slide will allow more air to pass through. Lowering it will cut off some of the humidified air. A little experimenting can soon determine for you which position works best under different outdoor temperatures.

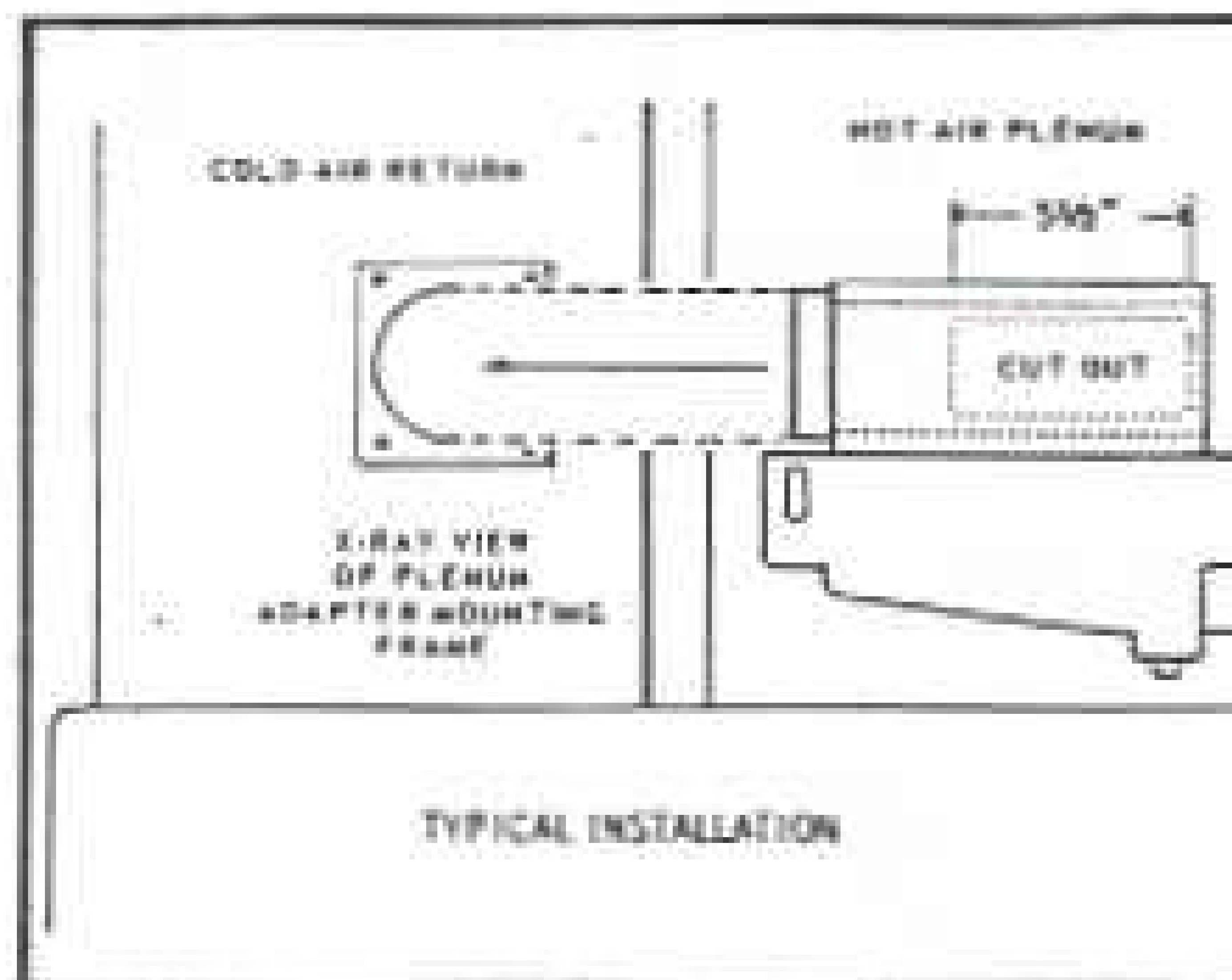


FIG. 9

EFFECTS OF AN ADAPTOR ON AIR CONDITIONING

If the humidifier Plenum Adaptor mounting is used, a damper or "close-off" plate should be installed during the air conditioning season. Enough air can recirculate through the down humidifier to cause the air conditioner evaporator to frost up. Closing off the opening will prevent any recirculation. The plate described in Figure 10 will serve the purpose.

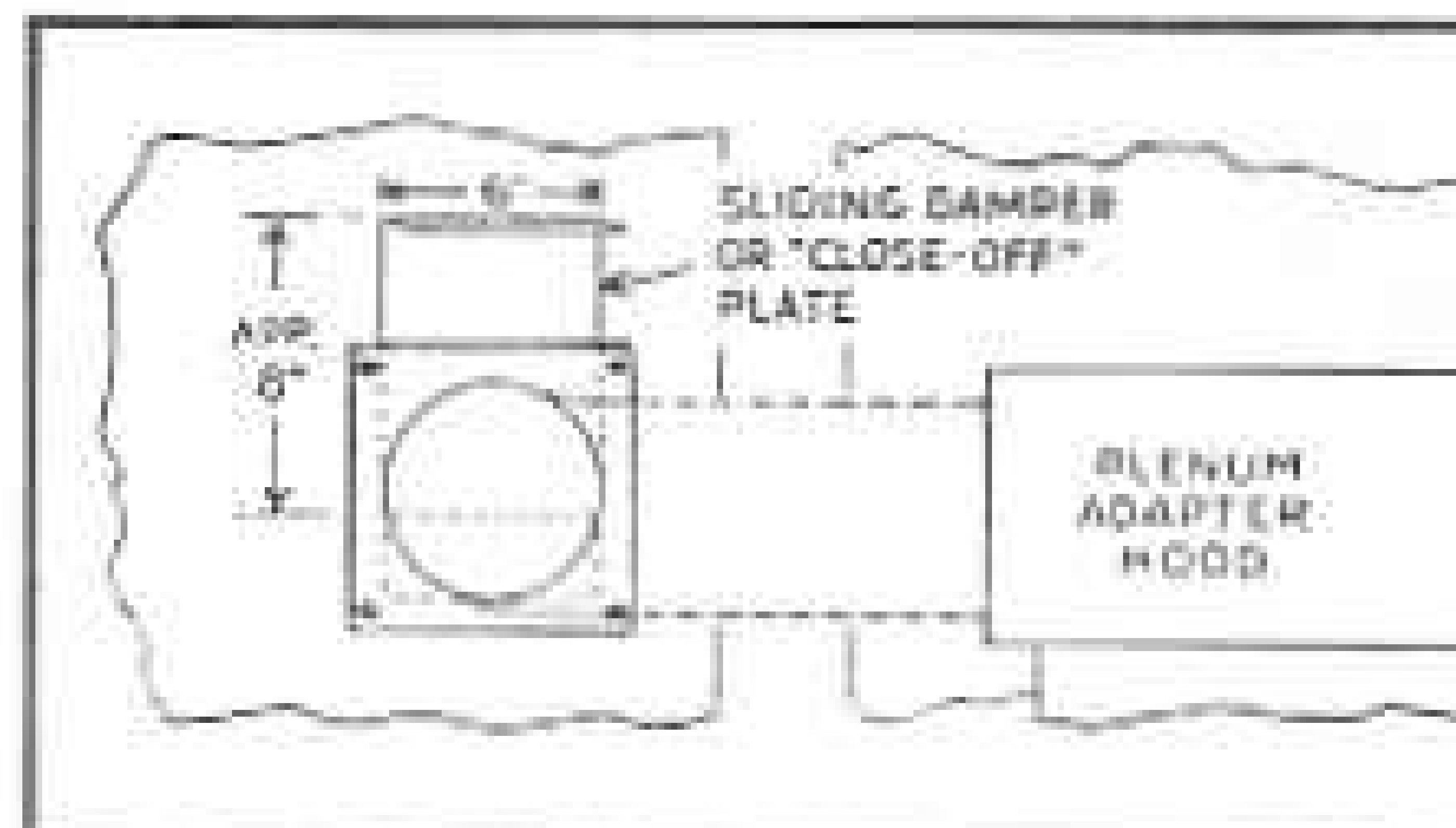


FIG. 10

Tips On Servicing Your Humidifier

1. DRAINING THE UNIT

Regular draining of your humidifier is important. During the first two weeks of operation, the unit's output is extremely high. A considerable amount of lime and other residue is left suspended in the water in the reservoir. After two weeks, remove the brass drain cap on the bottom of the unit, and drain approximately one bucketful of water. After this original draining, follow this draining schedule:

- 0-5 grains hard water — once per heating season*
- 5-10 grains hard water — twice per heating season*
- 10-20 grains hard water — four times per heating season*
- 20 & above — one each month during the heating season*

This draining process should be followed even though your home has a water softener. Regular draining removes the excess lime deposits which are washed off in the reservoir, and will lengthen the life of the discs.

**Contact your water department for the grains of hardness of your local water supply.*

2. CLEANING THE UNIT

Here is the preferred procedure to thoroughly delime the interior of your humidifier.

First, unless the discs are thicker than approximately $\frac{1}{8}$ " , we suggest they not be cleaned. They may well be working more efficiently with the extra surface created by the lime. The only time the reservoir needs cleaning is when the layer of lime on the inside surface has thickened to the point where the discs touch or when the discs appear to be limed thicker than $\frac{1}{8}$ " .

For cleaning either the reservoir, or the disc assembly, or both, first remove the unit from its mounting and fill it to the normal level with water. Second, if it is possible to set it somewhere near the furnace, plug the unit in with the furnace fan running so that the discs are turning. Third, pour from two to four pints of Muriatic Acid into the unit. This acid is inexpensive and obtainable at most hardware stores. It cannot damage any part of the humidifier. In most cases, the cleaning process is complete in from five to ten minutes. Rather irritating fumes can be generated, so be sure the area is well ventilated.

If the unit cannot be plugged in so that the discs are turning during the cleaning, manually remove them and turn them over several times during the cleaning.

3. OVER HUMIDIFICATION

Your humidifier will maintain relative humidity between 35 and 45 percent when properly sized and installed. This range is considered perfect at room temperature. To maintain this range, automatically, with a humidifier, it will pick up a lot of moisture swiftly. Moisture is picked up additional moisture at a progressive rate. Air passing between our discs in about 1/10 of a second gives to approach the optimum 35 to 40% humidity and less on each passage through the furnace burner is constantly taking air from the house, fresh air is constantly being brought in through the chimney, fresh air is constantly being brought in through the chimney. This fresh air needs humidity. The humidifier from the time it enters the house, a mixture of air passing approximately 50% humidity from the time it enters the house out through the chimney. This limits the humidity of the air has an opportunity to pick up and control we mentioned. It is practically impossible for a properly sized and installed humidifier to bring humidity to a level above 45%.

In a properly constructed home with "Thermo Pane" windows, or properly fitted storm windows, research has shown that an outside temperature of zero will just begin to cause forming condensation on the windows. Improper construction, metal casement windows, improperly fitted storm windows, will start this condensation before zero is reached and may well call for the installation of a humidistat to cut the inside relative humidity to a tolerable reading. Remember that the humidistat is only a limiting device for use in putting a ceiling on the humidity level and does not increase the efficiency or capacity. Remember also that any humidity setting below 35% is somewhat less than ideal and the lower it goes, the fewer the benefits you will enjoy from your unit. Naturally, this would be true regardless of the source of humidity.

You can see that the word "over-humidification" is, therefore, a relative word and true over-humidification would begin at some level above the perfect combination of 40% at 72 degrees.

4. UNDER-HUMIDIFICATION

If the humidifier is not maintaining a reading somewhere in the range of 30% to 45%, we must look for other causes.

Briefly, here are the most common causes in the order of their occurrence:

A. The water valve has not been turned on, or the water line is clogged.

B. A fireplace flue has been increased heating costs, by more than the humidifier can

C. The adaptor opening has not been installed according to instructions on installing.

D. No deflector has been mounted in the wrong place.

E. The wrong size unit has been installed.

F. The bedroom windows are not properly sealed, having the same effect as a fireplace to popular belief, actually more.

G. A fresh air intake has not been installed in a home.

H. The motor is inoperative.

I. The discs are lined and need cleaning.

J. A zoned heating system has ducts and the humidifier duct that is closed most

HOOKUP INSTRUCTIONS FOR SENTINEL AUTOMATIC DIRECT FLUSH MODEL

Units equipped with Sentinel automatic direct flush module require very little installation time. The electrical hookup has been made and tested at the factory and all that is required after the normal humidifier installation is the addition of a drain hose to the nearest drain or condensate pan. (Optional tubing kit # FH-520 may be used for this installation.) If not using installation kit, a length of 3/8 I.D. hose of sufficient length and some means for fastening same will be required. Push one end of the hose over the fitting exiting from the front right-hand side of the humidifier. Run to the nearest drain or condensate pan and clamp in place to prevent spillage. (Clamps are included in installation kit # FH-520). The sentinel unit will pump to a head of (4) feet and a distance of 20 feet.

