

Hot_Water_From_Any_Heat_Source_1997.txt

Subject: Hot water from any heat source

4 oct 97 sent

Make a heating coil: 1/2" copper or stainless steel tubing wound into an open spiral of approximately 3 turns with an over all diameter of about 12" with several ft of straight pipe on each end.

Use car 1/2" heater hoses and connect one end to the bottom of a thermally insulated hot water holding tank. Could use an old gas house water heater. The other end of the heating coil is connected using the 1/2" heater hose near the top of the holding tank (to be under water). The bottom of the tank needs to be placed higher than the heating coil so that water is always forced into the coil as it boils.

Place the heating coil under or near any fire or hot item. If you cook with electricity this coil could be permanently attached to the back side of the bottom and side reflecting plates. If you build a fire this could be placed in the bottom of the fire or under it.

The point is, to capture as much of the waist energy escaping to the bottom and sides of any cooking operation as you can.

With a small portable container this process can be used to provide hot water when camping-traveling between settlements.

Note: Bigger and smaller tubing can be used as appropriate. For example the gas tank out of a car and some of the steel and rubber gasoline lines could be used in a pinch to produce a small version. Warning: Make sure all the gasoline has dried out before using these items near open flames.

Another way: If you have a wood or oil burning space heater wrap your tubing around a hot vent pipe to capture the heat that would normally escape the room.

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Subject: Making steam from common items - additional ideas

A pressure cooker or some whistle type tea pots can be used to make a crude distiller. The old fashion pressure cooker with a pipe sticking up on the lid will work good without modification, otherwise a outlet pipe may need to be epoxied, screwed (taped and threaded), or otherwise secured onto the lid.

Use rubber tubing to connect the pressure cooker to the top of a spring shaped coil of 1/4" or bigger copper (or steel car gasoline line) tubing. The copper spring shaped coil is vertical with the top end positioned below the top of the pot so that condensing water runs down hill from the pressure cooker to the spring coil. Water then runs down hill coil by coil on the inside of the spring coil of the tubing to another pot or reservoir that catches the condensed water. The tubing is positioned so as to stay cool with air circulating around it. The tubing can be made longer if steam is still coming out instead of water.

Thermally insulate the top and sides of the pressure cooker with several layers of loose fitting aluminum foil to improve the efficiency and heat loss. Make a cap that fits over the top and sides of the pot. Keep it away from open flames it may melt the aluminum foil. This will help reflect the heat back to the pot. Make this foil cover with many air pockets between the layers - helps cut down on the thermal conduction from one layer to the next.

Now at this point you can produce distilled water. The only disadvantage is you need to stop and fill the pot every so often.

One way to get around this and keep the pressure cooker filled all the time is to tap threads into the side of the pot near the bottom and connect a small copper tubing (using an appropriate fitting) to a separate container that can be kept full to a mark at regular intervals. This water mark may need to be higher than the intended water level in the pressure cooker. This would be dependent

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on the amount of back pressure or how small the outlet tubing is compared to the amount of steam being produced. A little experimentation will determine the correct water line to use.

Note: The tubing between the pressure cooker and the supply needs to be small or can be slightly kinked to cut down on oscillations of water from the pot flowing back to the source water. Oscillations will cut down on efficiency and heat up the source water. A one-way-valve or needle-valve can be used also if available.

How to get around someone needing to fill up the source container every so often: A cheap float valve like the type used in evaporation water coolers can be used to keep the water level up to a given mark in the source container. Water could be supplied under pressure by a battery operated water pump from a remote source of water.

Copper tubing and fittings after PS can be found in under the counter water filters, dishwashers, refrigeration ice makers, and evaporation type water coolers.

The above solution has three different levels of complexity depending on what one is capable off building. Each level is workable to produce distilled water if one stopped at that level.

Additional thoughts:

If one can make steam in a big way, consider using the radiator or heater coils out of a car as a condenser.

Note: Any condenser whether the copper spring coil or the radiator out of a car, if not efficient enough, use water cooling on the outside.