Commercial Vacuum Distiller

The commercial vacuum distiller is the world's most advanced and versatile extractor. It offers five different methods of extracting botanicals and four different ways of distilling. The heart of the system consists of a 2'x4' id stainless steel processing tank. This tank is surrounded by a heating jacket that is filled with water and warmed with two 4,000 watt immersion heaters. It sits in a stainless steel stand suspended 18" above the floor. An electric winch is included for lifting and lowering components for the tank. A circulating pump is also included.

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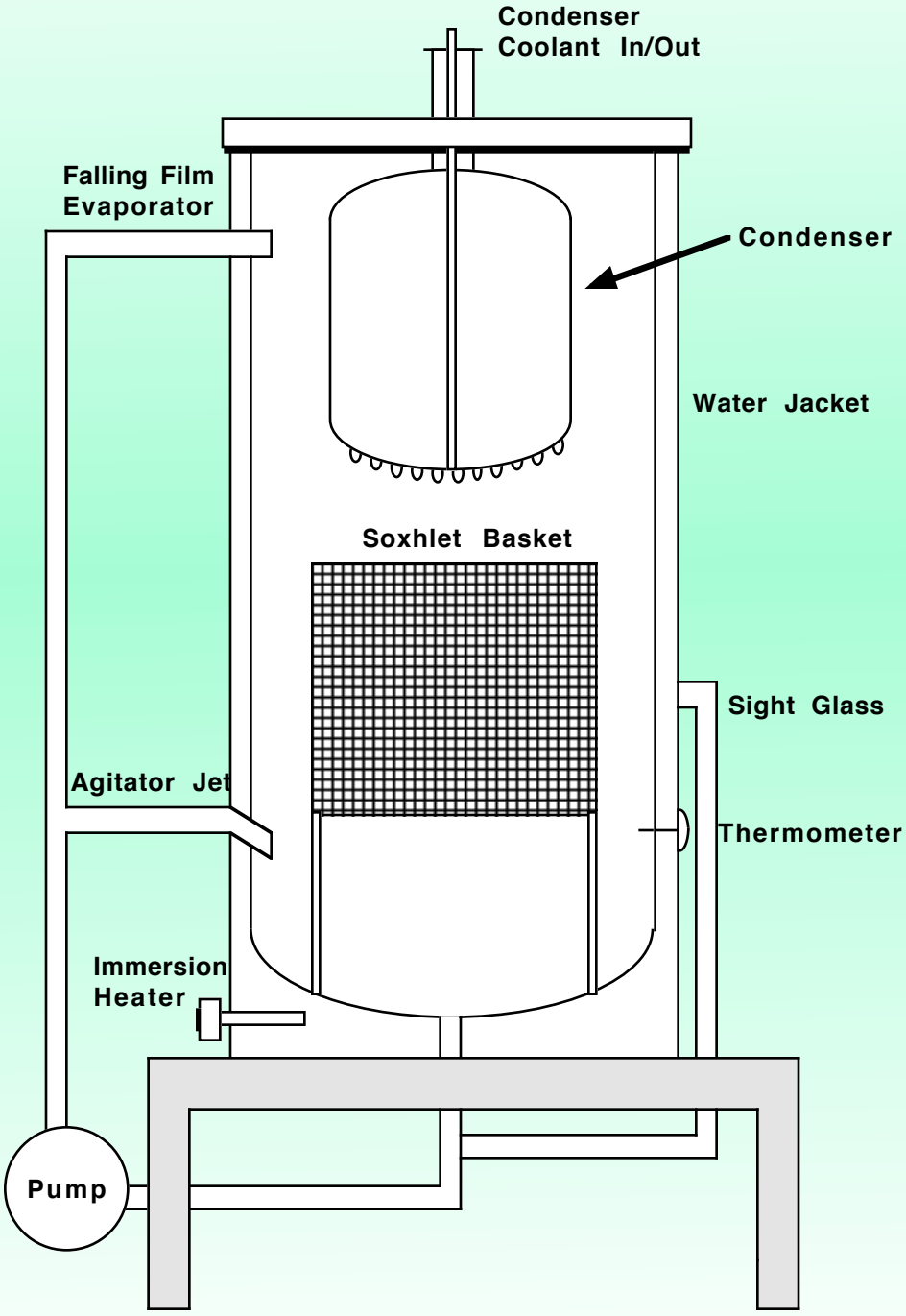
COLDFINGER EXTRACTION



This is the proprietary extraction method pioneered by Eden Labs. It combines a soxhlet style solvent distillation with steam distillation. This is achieved by suspending a basket of ground herb material just above the heated solvent. A condenser is suspended just above the basket of herb. Gentle heat and/or vacuum vaporizes solvent which then liquefies on the condenser and drips through the herb thereby extracting it. While this is taking place, solvent vapors are condensing directly on the herb and extracting it as well. This process can be jump started in the beginning of the extraction by utilizing what we call "coffee maker mode" in which the solvent is sprayed across the herb just like a conventional coffee maker. Tests have shown this process gives better yields than all other methods. In some cases, analysis of extracts made with this method has shown compounds that were not even known to be in the botanical. This led researchers to conclude that the previous extractions were either not extracting these constituents or were destroying them in the process.

The herb basket measures 18"x18" and holds approx. 40-50 lbs. Set-up takes about 20 minutes and is like loading a giant coffee maker. Then the unit runs for 1-3 days. At the end of the process, you will have approx. 30 gallons of very concentrated high quality liquid extract.

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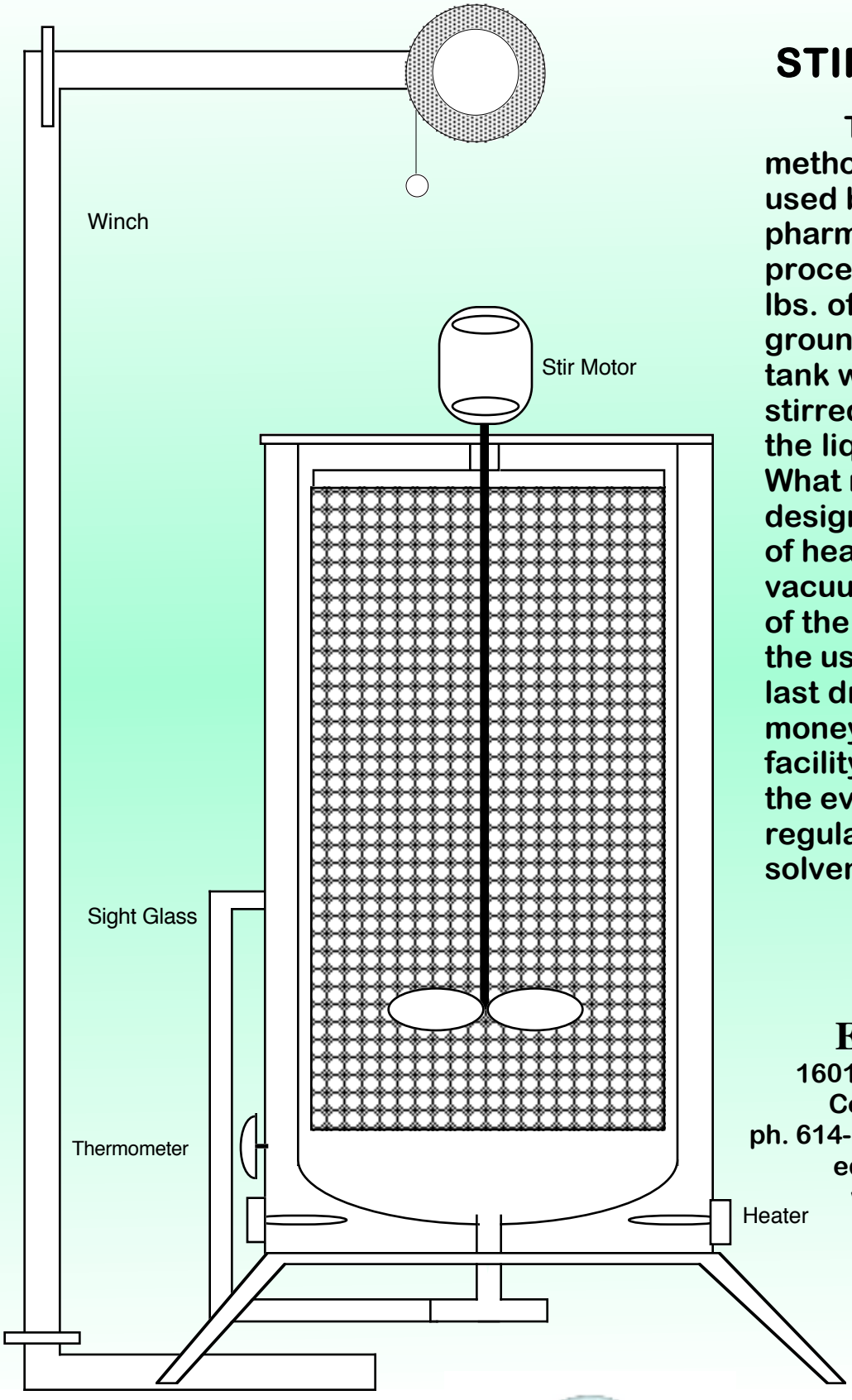
STIRRED REACTOR



This is the standard method of making extracts used by countless food, pharmaceutical and herb processors world-wide. 8 lbs. of solvent to 1 lb. of ground botanical is put in the tank where it is heated and stirred for 90 minutes. Then the liquid is drained off. What makes the Eden Labs design unique is the option of heating and putting vacuum to the tank at the end of the process. This allows the user to recover every last drop of solvent saving money and bringing your facility into compliance with the ever expanding regulations regarding solvent vapor emissions.

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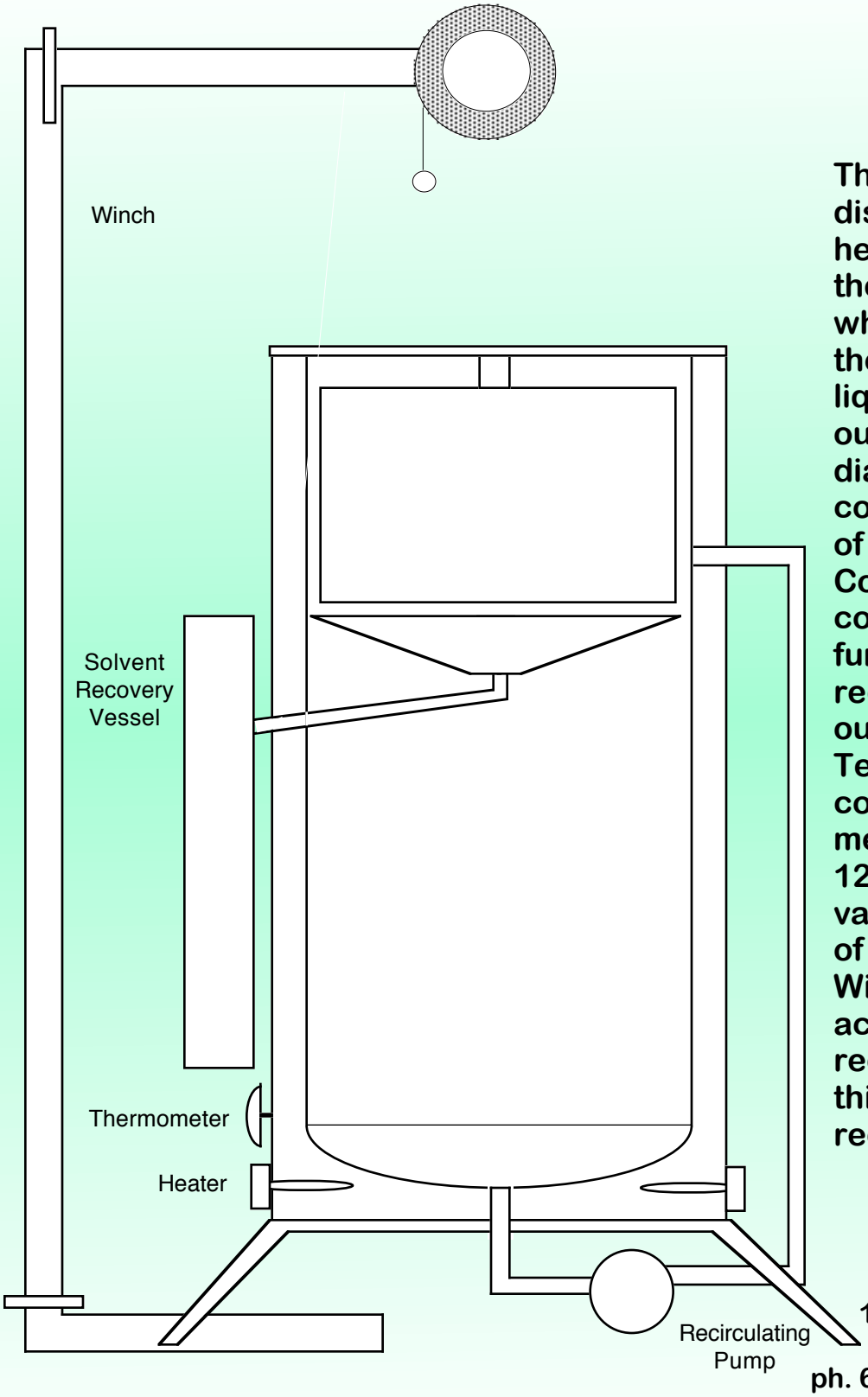
ACCELERATED SOLVENT RECOVERY



The method of solvent distillation recovery shown here is four times faster than the conventional method whereby vapors flow out of the boiling chamber and liquefy on a condenser outside of the vessel. As the diagram shows, the condenser is inverted inside of the boiling chamber. Condensate drips off the condenser and in to the funnel below it. The recovered solvent then flows out to a separate vessel. Tests show that using the conventional distillation method with the chamber at 120F and 20" of mercury vacuum, one gallon per hour of ethanol will distill off. With the Eden Labs accelerated solvent recovery method show in this diagram, one gallon is recovered every 15 minutes.

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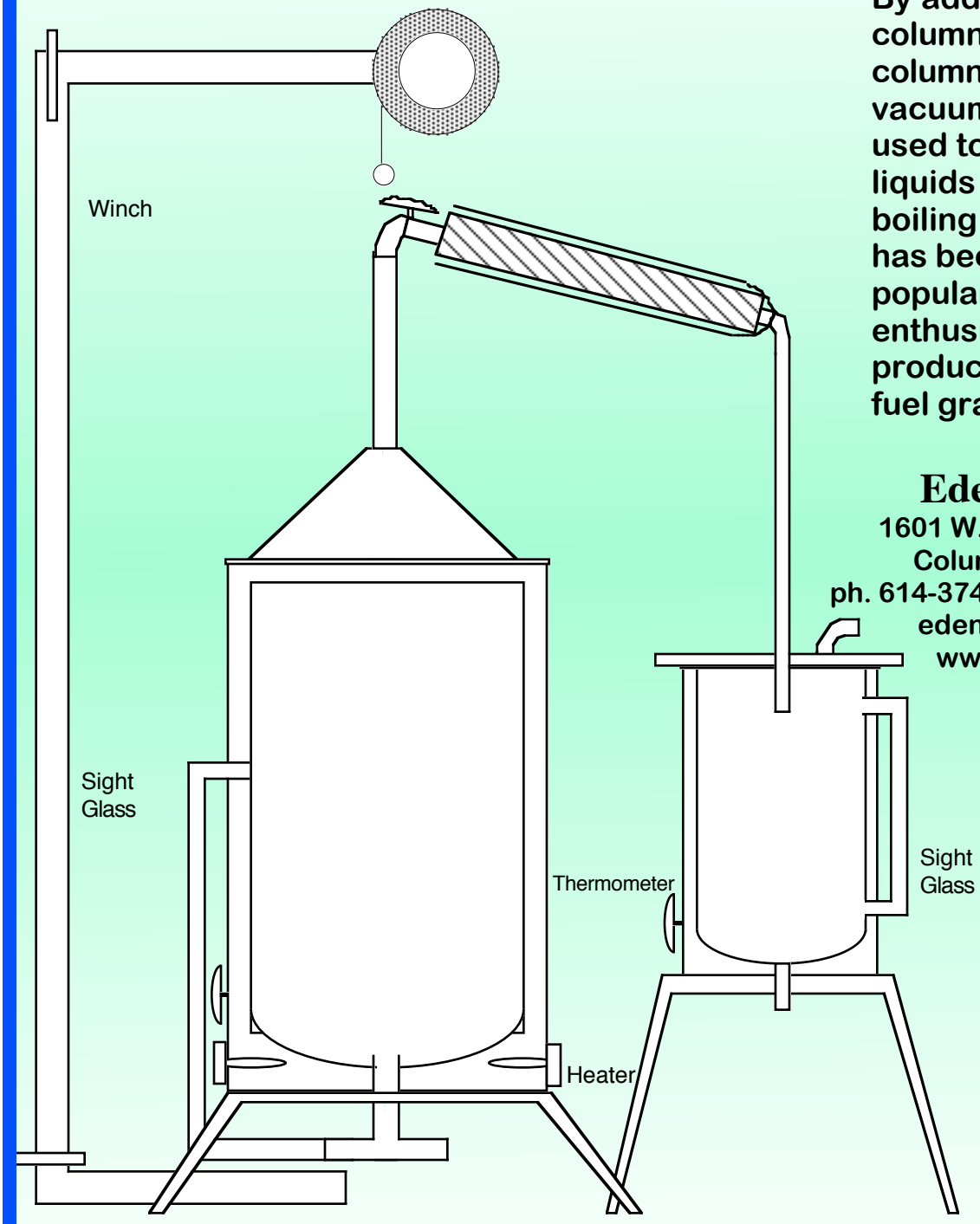
FRACTIONATING COLUMN



By adding a packed column or fractionating column, the commercial vacuum distiller can be used to separate various liquids with different boiling points. This unit has become increasingly popular with fuel ethanol enthusiasts. It can produce 20-25 gallons of fuel grade ethanol per day.

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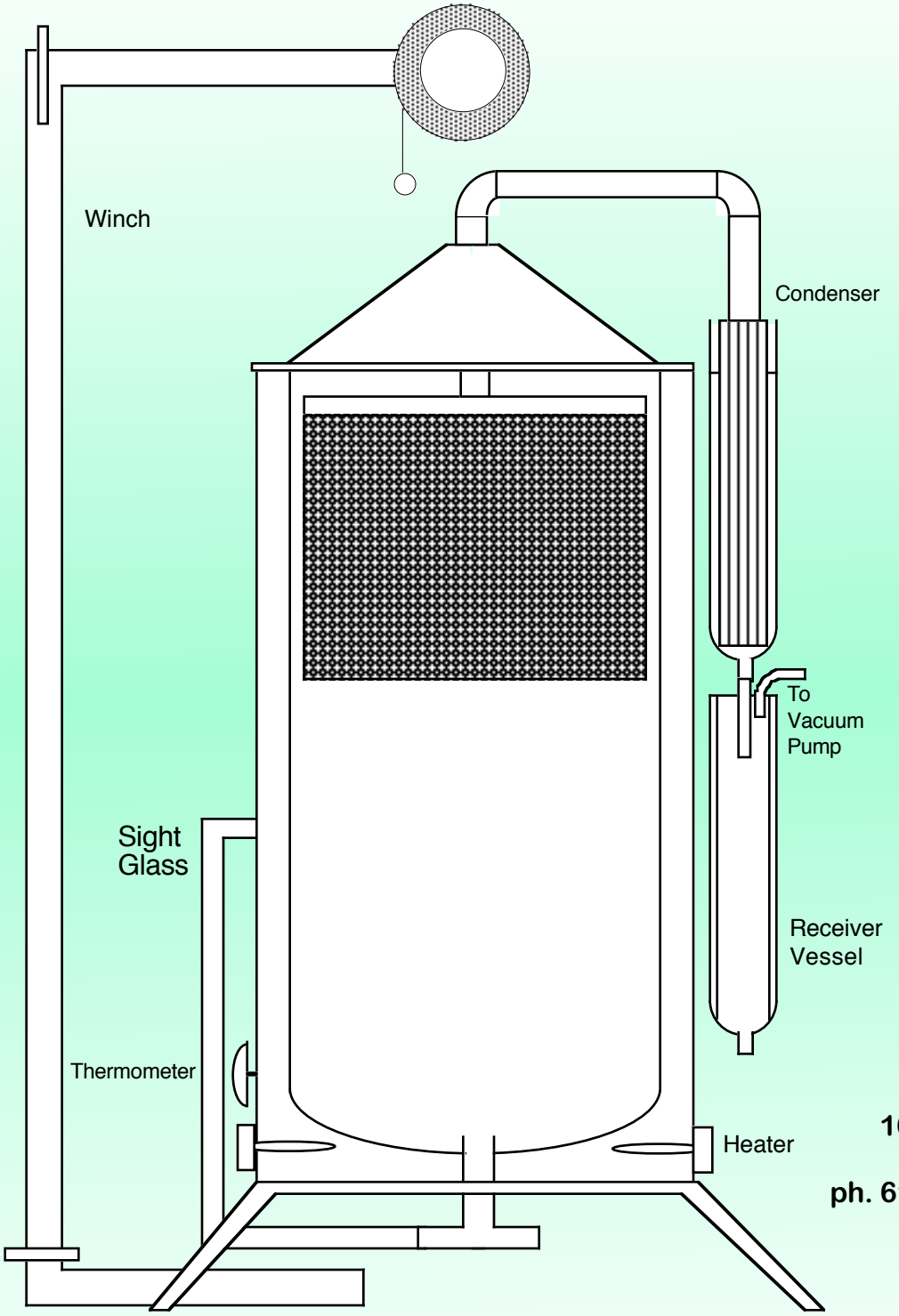
VACUUM STEAM DISTILLATION



This is another Eden Labs breakthrough. By putting the extraction tank under vacuum, steam can be created at much lower temp. This creates new steam distillation parameters which have never been seen before. Delicate volatile oils which suffer from thermal degradation under conventional steam distillation may be able to be extracted with little or no damage. The configuration shown here can also be adapted for conventional steam distillation with the addition of a steam pump.

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